How to secure a bigger IT security budget. PAGE 46 Future Watch: Move to fast wireless is accelerating. PAGE 35

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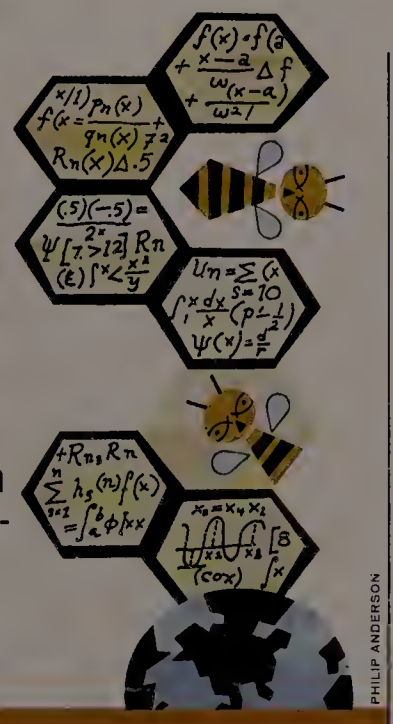
OCTOBER 13, 2003 ▪ VOL. 37 ▪ NO. 41 ▪ $5/COPY

GRIDS EXTEND REACH



PHILIP ANDERSON

EMERGING TECHNOLOGIES

Grid computing has been embraced in scientific niches, and vendors are touting it for all kinds of applications. But the reality is that mainstream business adoption is several years away. Web services hold the key. PAGE 29

Military Orders Suppliers To Use RFID Technology

Radio frequency tags required on pallets, cases by start of 2005

BY BOB BREWIN

The U.S. Department of Defense last week said it will require all of its suppliers to put radio frequency identification tags on their shipping pallets and cases by January 2005, a mandate that likely will have an even bigger impact than a similar move by Wal-Mart Stores Inc. in June.

The endorsements of RFID technology by the Pentagon and the retail giant are expected to force product manufacturers and distributors to make big investments in their IT infrastructures over the next 15 months.

The Defense Department's new policy will cover virtually everything bought by the U.S. military, from beans to bullets and from toothpaste to tank parts. The so-called passive RFID tags will be used to track the movements of about 45 million line items, said Alan Estevez, assistant deputy undersecretary of Defense for supply chain integration.

Estevez couldn't quantify the number of suppliers that will be affected by the RFID policy, which was set out in a document signed by Michael Wynne, the acting undersecretary of Defense for logistics. But the Defense Logistics Agency, which bought an estimated $24 billion worth of goods last year, currently does business with 23,642 suppliers, according to a spokeswoman.

Like Wal-Mart, which is requiring its top 100 suppliers to adopt RFID [QuickLink 39181],

RFID Tags, page 55

IN-DEPTH

For additional RFID coverage, visit our Web site:
QuickLink a3690
computerworld.com

Microsoft CEO Promises Better 'Patch Experience'

Ballmer details plan for streamlined patch management, training

BY CAROL SLIWA
NEW ORLEANS

During a keynote speech at last week's Microsoft Worldwide Partner Conference here, Steve Ballmer didn't shy away from discussing the security woes that have beset his company and its customers.

On the contrary, Microsoft Corp.'s CEO addressed the issue head-on and outlined a set of new and updated initiatives that the company is working on to improve the patch management process, provide guidance and training to help users secure their systems, and make the vendor's products more resistant to attack.

Partners welcomed the news and cheered loudly when Ballmer told them that by May 2004, there will be one place on the company's Web site where all patches for all Microsoft products will be available. The new Microsoft Update will complement the existing Windows Update.

"This will just simplify things," said Mitchell Rubin, president of Lynx Consulting Group in Springfield, Pa. "Now I go to Windows Update for patches, and I have to go to a different site for Office."

Ballmer also set a May 2004 deadline for the single "patching experience" that the company has pledged will replace its multiple patching systems.

Patches, page 16

INSIDE
Microsoft discloses Web services management strategy.
Page 16

A Question of Ethics

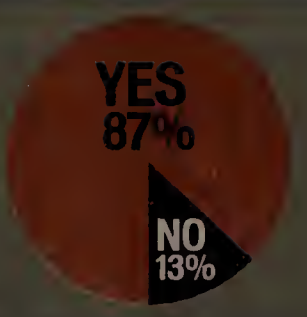
SPECIAL REPORT

Recent controversies surrounding the credibility of IT market reports and how they're funded have put research firms on the defensive. IT pros who rely on the reports for making purchasing decisions and formulating IT strategies are demanding more transparency. In this special report, Thomas Hoffman looks into the ethics policies of major research firms and IT managers' expectations. SEE PAGE 4

ONLINE EXCLUSIVE

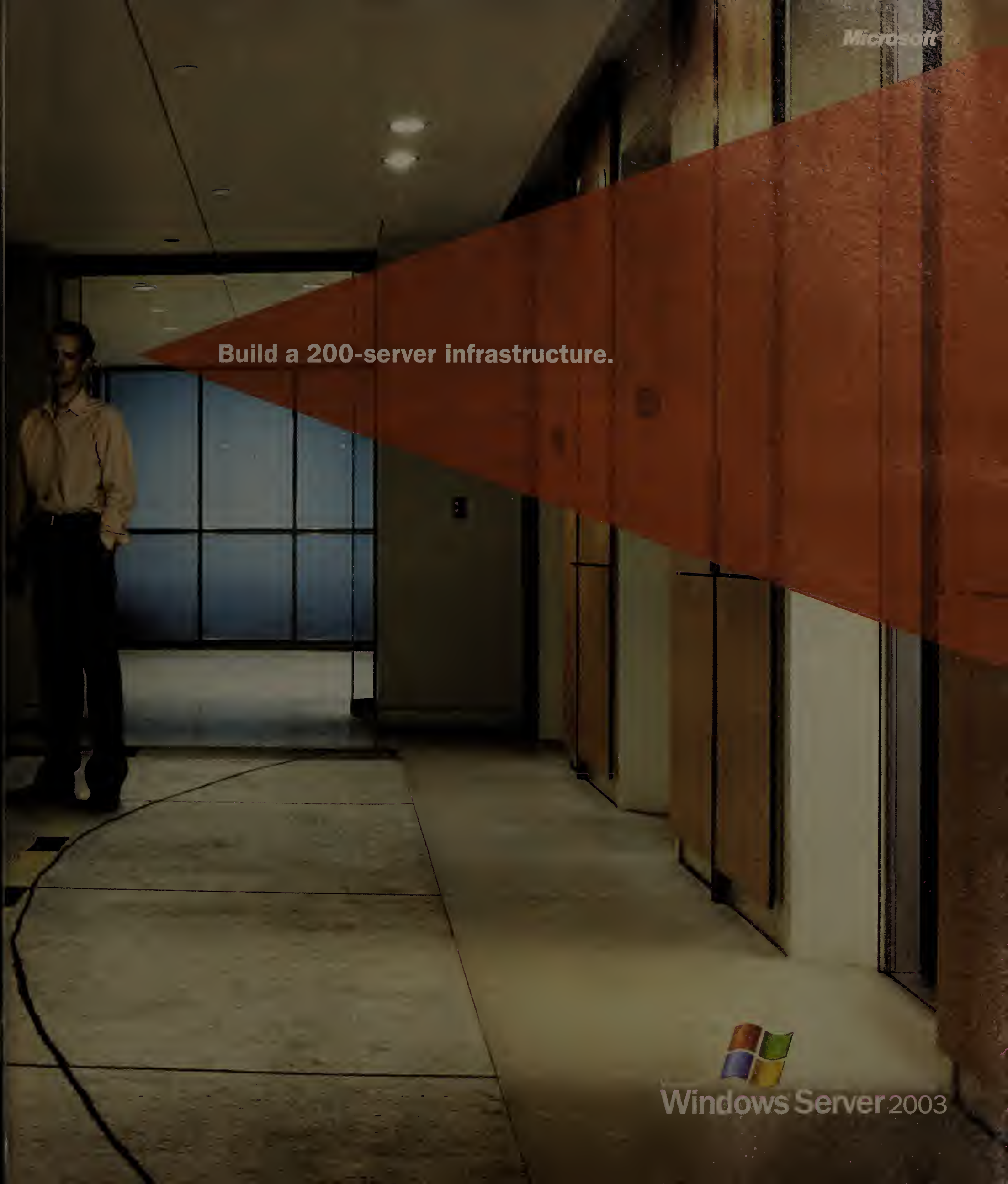
Senior executives from six top market research firms explain their positions on conducting research sponsored by a single vendor. QuickLink 42037 ▪ www.computerworld.com

Have you ever questioned the statistical validity or integrity of market research?



SOURCE: COMPUTERWORLD SURVEY OF 133 SENIOR IT MANAGERS

NEWSPAPER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Build a 200-server infrastructure.
Windows Server 2003

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10.13.03

MySQL Breaks Into the Data Center

In the Technology section: Critics claim it's not a mature technology, but MySQL is changing the nature of the database market with a powerful combination of low cost and high performance. **Page 32**

Nine-Digit Dilemma

In the Management section: Some companies must still include risk-laden Social Security numbers in their customer data, but others can now omit or replace them. It's up to IT to figure out the complex and costly technology solutions to the identity theft problem. **Page 41**

NEWS

SPECIAL REPORT

A Question of Ethics

Market research firms are responding to questions about their credibility in light of recent controversies. Page 4

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8 **Siebel tries** to soothe users with an upgrade of its CRM applications and further moves to simplify the process of integrating its products with other systems.

10 **HP e3000 users** are being forced to make some difficult migration decisions affecting their IT infrastructures.

10 **Chief security officers** are finding that justifying security spending based on fear alone no longer flies with senior management.

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6 **On the Mark: Mark Hall** has the goods on Fujitsu's new RISC chip and Unix servers. And he's discovered the difference between spam and honest marketing.

24 **Maryfran Johnson** suggests for now that you shy away from the grid computing Kool-Aid being served by many leading vendors.

24 **Pimm Fox** argues that for $139.5 million, the NYSE could get a very nice IT alternative for its trading floor operations and oversight duties.

25 **David Moschella** believes that the next frontier of e-commerce standards will be set by users, not vendors.

39 **Nicholas Petreley** imagines how it would go if Sun Microsystems sought professional help for its identity crisis.

48 **Bart Perkins** says the conditions are right for the third wave of offshore IT outsourcing to be more successful than the first two.

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ONLINE

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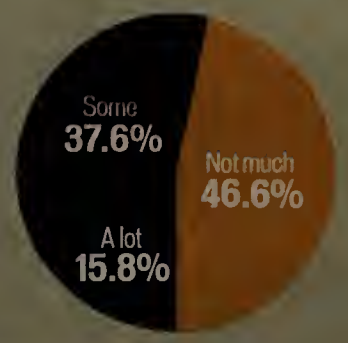
QuickPoll Results

How much do you rely on analyst reports before making major IT decisions?



Take this week's QuickPoll at www.computerworld.com.

SOURCE: *COMPUTERWORLD.COM* NONSCIENTIFIC SURVEY, 354 VOTES

Outsourcing's Hidden Costs

DEVELOPMENT: Offshore outsourcing's drawbacks can outweigh its benefits, warns a CEO who has been outsourcing for years. **41784**

Coping With Privacy Costs

MANAGEMENT: Complying with privacy regulations may be expensive, but it's key to preventing even more costly legal liabilities, says risk management expert Jim West. **41890**

U.S. Leads in Online Privacy Disclosure

PRIVACY: U.S. companies are better at disclosing their privacy policies than businesses elsewhere, but they still have a ways to go to make those policies truly understandable, writes columnist Jay Cline. **41886**

What's a QuickLink?

Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the QuickLink box, which is at the top of every page on our site.

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Market Research Providers Confront Credibility Concerns

IT chiefs say they want ethics policies and disclosures stated more clearly

BY THOMAS HOFFMAN

SPECIAL REPORT

RECENTLY PUBLISHED reports that have prompted questions about the credibility of some market research firms have spurred two of the biggest names in the field to make substantial changes to their ethics and disclosure policies.

And that's a good thing, users say. They want to see market research firms state their ethics policies more clearly on their Web sites and through other distribution channels, according to an exclusive *Computerworld* survey of 133 IT professionals that was conducted last week.

Last month, some IT professionals reacted angrily to a Microsoft-funded report released by Cambridge, Mass.-based Forrester Research Inc. that concluded that developing and deploying Web-based portal applications is substantially less expensive using Microsoft technology than it is using a Linux/J2EE combination [QuickLink 41320].

Two weeks later, the release of an anti-Microsoft security report led to the firing of one of its co-authors, who harshly criticized the vendor's dominance of the software industry [QuickLink 41691].

Forrester CEO GEORGE COLONY: "We're correcting our processes."

Interviews with 15 CIOs last week indicated that many IT executives continue to rely on market research firms as one component of making product purchasing decisions or setting strategic plans. But some CIOs say they have soured on the use of market research because of credibility concerns, high costs and doubts about the reports' value.

For instance, Russ Lewis said he made use of research from Forrester and Gartner Inc. quite often when he was CIO at New York investment bank Jefferies & Co. from 1994 to 1999. But he "found their research to be somewhat limiting and narrow in focus," said Lewis, who is now CIO at GFInet Inc., a subsidiary of New York-based brokerage services provider GFI Group Inc.

"I'm not a big fan of any of those market research firms," Lewis said. "I don't believe them to be independent, and I don't believe their research to be valuable except at a very high level for very large firms."

For its part, Forrester is making substantial changes to its ethics and disclosure policies following the release of the Microsoft-sponsored report and controversy surrounding another recent report that was funded by PeopleSoft Inc.

PeopleSoft had sponsored a survey of more than 600 business and IT users that examined users' satisfaction with products from several enterprise application vendors, including PeopleSoft, SAP AG, Oracle Corp. and Siebel Systems Inc. PeopleSoft put out a press release on Sept. 15 in which it boasted that it "outscored SAP, Oracle, and Siebel in the overall ability to deliver a superior enterprise application ownership experience" [QuickLink a3710]. The release attributed the findings to "an independent research study completed by Forrester Research" but failed to mention that PeopleSoft had paid for the study.

Steve Swasey, director of corporate public relations at PeopleSoft, said there was no point in disclosing the source of the funding. "What's the need? The research was objective and unbiased," he said. "We would have done the same if the research was sponsored by someone else."

Allowing PeopleSoft to publish the results in the press release was a mistake, a Forrester spokeswoman said last week.

In an interview last week, Forrester CEO George Colony said that the company has taken steps to "tighten" its internal processes and its integrity policy. In fact, Forrester "will no longer accept projects that involve paid-for, publicized product comparisons," according to a statement from Colony that's now posted on the company's Web site.

"We erred in the Microsoft and PeopleSoft cases, and

Point/Counterpoint

"I'm not a big fan of any of those market research firms. I don't believe them to be independent.

RUSS LEWIS, CIO, GFInet Inc.

"I think their opinions are based on fact and not on sponsorship. They're calling the shots as they see them.

JOE PUGLISI, CIO, Emcor Group Inc.

CIOs Hold Market Research Firms to a High Standard

A whopping 87% of 133 respondents to a *Computerworld* survey said they have questioned the statistical validity or integrity of market research. And the same percentage said they would like to see clearly stated ethics policies regarding the research firms' vendor relationships.

"Like any other companies, I understand that they have to go after different sources of funding," said Cathy Brune, senior vice president and chief technology officer at Allstate Insurance Co. in Northbrook, Ill. "But they need to be honest about saying who pays for the research."

"If the research is funded by a vendor and it examines their marketplace, I question it with a jaundiced view," said Lew Temares, vice president of information resources at the University of Miami in Coral Gables, Fla.

Bruce Fadem, vice president and CIO at pharmaceutical company Wyeth in Paoli, Pa., said his biggest concern with market researchers isn't the credibility of their work but the kind of influence they can sometimes wield in establishing themselves as market makers.

Four years ago, Fadem made extensive use of research from one firm that he declined to name, to help him make a purchasing decision on a global change management system. Fadem said the research firm in question "became infatuated" with a particular vendor in this market "and didn't do as thorough a job as they should have" in examining the viability of the company. "Nor did we," he acknowledged.

Two years after Wyeth had made a "major" investment in software from this company, the

Fewer Secrets

COMPANY	DISCLOSES SOURCE OF RESEARCH FUNDING	POSTS ETHICS POLICIES ONLINE
Forrester Research Inc.		
Meta Group Inc.		
AMR Research Inc.		
Gartner Inc.		
Aberdeen Group Inc.		
IDC		

we're correcting our processes," Colony said.

Forrester isn't alone. Boston-based Aberdeen Group Inc. plans over the next 45 days to "sharpen and enhance" the ethics policies posted on its Web site in order to more clearly state its research methodologies, said James L. Bedard, who became Aberdeen's president and CEO in August. The decision is partly a response to a June 2002 *Wall Street Journal* story criticizing firms that offer "praise for pay." In that story, the previous Aberdeen management defended the practice of publishing favorable research reports for vendors.

"It's critical that [customers] have the highest degree of belief in our integrity," said Bedard.

Executives at other leading market research firms, including Gartner, Meta Group Inc. and IDC, say they haven't made any recent changes to their ethics policies or how they go about disclosing them.

"If anything, we're often asked [by vendors] to change [our disclosure policies] in the other direction" and make them less restrictive, said David Yockelson, executive vice president and director of technology research services at Stamford, Conn.-based Meta Group.

Meta Group "rarely" takes on research sponsored by a single vendor, said Yockelson. And though the vendor does have the right to review Meta Group's findings in these types of reports, Yockelson said, "that doesn't give the vendor the right to not publish it or change it. They can come back and say they disagree. But we won't withhold it because it's funded by the vendor."

If Meta Group is conducting internally funded research in which a particular vendor receives a "substantial mention," the researcher will allow the vendor to fact-check the material and recommend changes for the sake of accuracy.

"We don't offer a vendor the guarantee that if they don't like what we write they can change it. As long as we are factually correct, we will publish whatever it is that we've created," said Yockelson.

Jim Shepherd, senior vice president at AMR Research Inc. in Boston, said vendor-sponsored research isn't an issue for his firm, at least from an ethics standpoint. "If we do research for a [vendor] client, it is not published and can only be used by a client internally," he said. "And we don't do much of that."

Like Meta Group, AMR will also let vendors fact-check its so-called deep-dive product review reports. "But we won't cede editorial control in any sense," said Shepherd.

Framingham, Mass.-based IDC, a sister company of *Computerworld*, "always discloses" in writing on the research document who the source of funding is for a particular piece of research, said CEO Kirk Campbell.

In the rare instances IDC does conduct vendor-sponsored research, said Campbell, the vendor has the right to review the findings. "But IDC has the final determination on all of its research content and how and where it is published," he said, adding that IDC hasn't made any changes to its research objectivity policies since they were established in the early 1990s.

Joseph Baylock, group vice president of vendor relations at Stamford, Conn.-based Gartner, said the company doesn't conduct any vendor-sponsored research, although its Gartner Consulting unit does conduct proprietary studies for vendors and groups of vendors. But those reports aren't published for public consumption, he said. 42031

vendor – which was not a start-up – went out of business, said Fadem.

"There's a real risk with these information suppliers, because they become of significant size and they're in a position to make a market," said Fadem, who continues to subscribe to reports from Gartner, Meta Group and Giga Information Group Inc. Market researchers "can tout a particular product and have their subscribers go in that direction at the cost of some very good products and services that don't get the support they deserve," he said.

Robert Schwartz, CIO at Matsushita Electric Corporation of America's Panasonic Co. division in Secaucus, N.J., said he has been a Gartner subscriber for years. And while he continues to rely on the firm's research to help him decide on IT product purchases, Gartner's expansion into consulting and other areas "was getting beyond research, and we found that we wanted to work with a firm that provided pure research," he said. Panasonic recently became a client of AMR Research, "since it was purely focused on research," Schwartz said. The company also wanted to tap AMR's supply chain expertise, he added.

Several CIOs touted the integrity of Gartner's research. "I'm pleased with the general research results we've gotten from Gartner, both the written results and from their analysts in particular. They've done a good job for us over the years," said Richard Gius, senior vice president of IT and CIO at Cardinal Health Inc.'s Medical Products and Services group in McGaw Park, Ill.

"They need to be honest about saying who pays for the research."

CATHY BRUNE,
SENIOR VICE PRESIDENT AND CTO, ALLSTATE INSURANCE

Curtis Wolfe, CIO and director of the IT department for the state of North Dakota in Bismarck, said the state has contracts with both Gartner and Meta Group. He said he finds the two firms "useful for affirmation" after his IT team evaluates market trends and product strategies by studying trade journals and attending industry conferences.

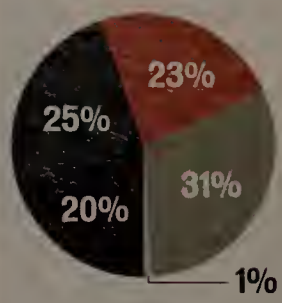
For instance, Wolfe said he recently asked Meta Group analysts for their insights on J2EE vs. .Net. "We found that their technical evaluations of the market were productive," said Wolfe. "They weren't necessarily supporting one over the other, and we found them to be very objective."

Joe Puglisi, CIO at Norwalk, Conn.-based Emcor Group Inc., made similar comments about Giga Information Group. "I think their opinions are based on fact and not on sponsorship," said Puglisi. "They're calling the shots as they see them."

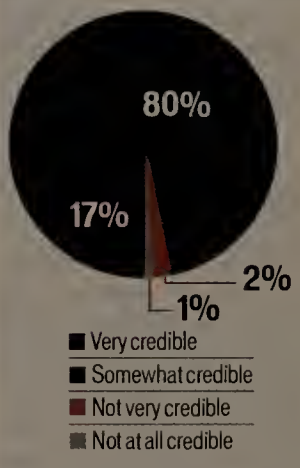
– *Thomas Hoffman*

By the Numbers

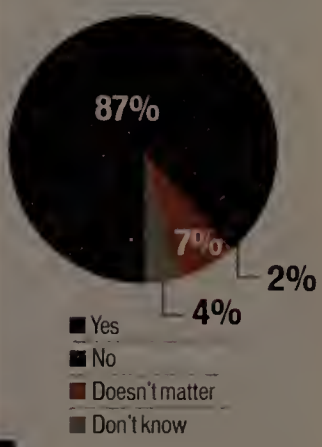
For what reasons do you rely upon market research?



How credible do you feel the information you receive from analysts is?



Do you think that research firms should have published, clearly stated ethics policies governing their vendor/client relationships?



SOURCE 133 RESPONDENTS TO *COMPUTERWORLD* SURVEY OF SENIOR IT MANAGERS

AT DEADLINE

Microsoft Tests Reporting Software

Microsoft Corp. released the first public beta-test version of software designed to add reporting capabilities to its SQL Server 2000 database. The new technology, called SQL Server 2000 Reporting Services, will be marketed as an add-on to the database and is due to ship by year's end. Microsoft made a beta version available in May to about 1,000 users.

Hitachi Upgrades High-End Arrays

Hitachi Data Systems Corp. in Santa Clara, Calif., announced upgrades of its two high-end disk array lines, including the addition of software that lets its Lightning 9900V devices mimic the WORM (write once, read many) capabilities of optical storage systems. That feature is designed to help financial services firms comply with document-retention rules.

Short Takes

HEWLETT-PACKARD CO. CEO Carly Fiorina was named to a committee that will advise incoming California Gov. Arnold Schwarzenegger on political appointments. . . . COREL CORP. laid off 18% of its workforce, or about 125 people. The cuts came two months after the Ottawa-based software vendor was bought by a venture capital firm.

Correction

An error was discovered in a story on page 20 in this week's issue ("Microsoft Releases Small-Business Bundles") after that page had already gone to press. The Fischer Group spent $20,000 in connection with its original installation of Microsoft Corp.'s Windows Small Business Server 2000 software bundle. The company spent $6,450 to upgrade its systems and hire outside help for a recent migration to Microsoft's Windows Small Business Server 2003 offering.

MARK HALL ▪ ON THE MARK

Fujitsu Unveils New Sparc Chips, Systems . . .

. . . tomorrow at the Microprocessor Forum in San Jose. The company will announce that it has two more versions of its Sparc V CPU in the pipeline. The new chips are expected to bump processing speed for the RISC microprocessor from the current 1.35 GHz to 2 GHz by 2005. And late that year, Tokyo-based Fujitsu plans to introduce its multithreaded Sparc VI processor running at 2.4 GHz. Sources said the company will need to **redesign the system bus for its PrimePower Unix servers,** which use Sun's Solaris operating system, to take advantage of the much larger data processing capacity of the new chips. Sparc V chip upgrades can be handled without replacing PrimePower servers, but when you move to the Sparc VI-based systems, "a box swap is required," a source points out. Fujitsu insiders also say that while **Sun has been struggling because of its broad line of low-margin systems** that compete with Windows and Linux servers, their company has seen record growth in its 16- to 128-processor Unix systems sales. Quarterly sales of PrimePower machines are exceeding the total annual sales of just two years ago. "We're a glass-house player. And that space is buying now," says one source.

■ The line between **mass e-mail marketers and spammers is thin to nonexistent** for some. But to others, the line is real and important. That's why the folks at Churchill Downs Inc. in Louisville, Ky., depend on their bulk e-mail application service provider (ASP) to have a thoroughbred relationship with Internet service providers. Mark Midland, vice president of marketing for the company that runs the Kentucky Derby, racetracks in five states and off-track betting operations throughout the U.S., claims his 50 e-mail campaigns totaling more than **1.3 million messages have boosted race attendance by 4%.** His company uses ExactTarget LLC, an Indianapolis-based ASP, to develop "one-to-one marketing messages to our loyalty program members," Midland says. ExactTarget President Scott Dorsey says he stays on the good side of his Internet service provider by requiring all of his customers to sign a contract specifying that they'll send messages only to an opt-in audience. He also demands that customers sign a minimum 12-month deal, thus eliminating spammers who abuse the system for a month and then move on. Still, Dorsey acknowledges that since ExactTarget opened its doors three years ago, he's had to **terminate "dozens of contracts of users who repeatedly violated the contract."** Later this quarter, ExactTarget will give its users more rule-based tools to respond in different ways depending on how a recipient responds to a message. Of course, if you delete it, no response is necessary.

■ Speaking of rules, if you use Web site acceleration appliances from Redline Networks Inc. in Campbell, Calif., you can get a free copy from now until January of its new OverDrive **software that processes if-then rules that you write.** For example, if you want to redirect visitors to another Web page from a URL they may have typed in, OverDrive will do it for you. ■ The debate about whether software problems are caused by dumb end users or dumb applications can be set aside if you **train people right on even the most obtuse application.** That's the theory behind RoboDemo Version 5, which ships at the end of the month from eHelp Corp. in San Diego. RoboDemo uses Macromedia Inc.'s Flash technology to record and play back instructions explaining exactly how to use a program so **even a journalist can use it correctly.** The new release will be able to import Flash and full-motion video files. You'll also be able to record in full-motion for applications such as drawing or CAD programs. The tuition — uh, price — is $399. **42006**

Suspicious? Inspect

Arrowkey Inc. in Lincolnshire, Ill., will upgrade its CD/DVD Inspector product in early 2004. The upcoming release is designed to let users link data on disk to the application that created it, even if the extension and file name have been removed. And law enforcement users will get a special tool to search disks for hidden files containing child pornography. Prices start at $349.

IBM Extends Tivoli Management to zSeries

BY MATT HAMBLEN

IBM today will announce that Tivoli systems management technology is being extended to its zSeries mainframe management products.

This extension has become necessary partly because some companies are moving back to centralized computing, said Steve Wojtowecz, director of strategy for Tivoli.

Two zSeries users who spoke with *Computerworld* last week said they hadn't heard about the new products but were interested. "Any new products that bring Tivoli management to zSeries are a step in the right direction," said Jim Haney, vice president of architecture at Whirlpool Corp. in Benton Harbor, Mich.

Jim Kennedy, program manager for enterprise systems management at the Internal Revenue Service, said Tivoli management technology could be valuable to its three computing centers in Detroit, Memphis and Martinsburg, W.Va. The computing centers use zSeries hardware and management software from BMC Software Inc., Computer Associates International Inc. and others. "They are all cobbled together but well managed so far," he said.

IBM announced three products for zSeries data centers. Tivoli Management Portal is a Web-based portal designed to interface with zSeries monitoring tools for a single view into the zSeries operating system, middleware, and network and storage systems. Tivoli Storage Optimizer will aid zSeries storage monitoring by automating routine tasks such as moving storage volumes, IBM said. And Tivoli Performance Modeler will help build models for IT resource capacity planning by enabling users to see the potential effects of changes in hardware or software configurations, said IBM.

Storage Optimizer is priced at $1,150 per "value unit" (IBM's term for a user or group of users acting as a unit), or about $75,000 for the average data center. Performance Modeler is priced at $1,000 per value unit, or about $68,000 for an average data center. There is no charge for Tivoli Management Portal. All three products will ship next month. **42001**

SERIOUS ABOUT zSERIES

IBM is boosting services and support for the zSeries mainframe:

QuickLink 41935
www.computerworld.com

What do you stand to gain by replacing your old PCs? A lot, for starters.

monitor not included

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BRIEFS

Microsoft Extends Java Support Plan

Microsoft Corp. and Sun Microsystems Inc. announced a deal that lets Microsoft continue supporting its Java virtual machine software through next September, nine months longer than originally planned. The companies said the deal is designed to give Microsoft users more time to migrate to other versions of Java. Microsoft plans to drop its Java code as part of the settlement of a lawsuit filed by Sun in 1997.

SAP, PeopleSoft Boost Q3 Forecasts

Business applications rivals SAP AG and PeopleSoft Inc. both said their third-quarter financial results will be better than expected. SAP said its success rate at closing sales improved during the quarter, although the company noted that its total revenue will likely drop by 3% year over year. Pleasanton, Calif.-based PeopleSoft said its software sales, total revenue and earnings should all top expectations.

Oracle Announces Low-End Database

Oracle Corp. released an entry-level version of its Oracle Database 10g software aimed at departmental use as well as small and midsize companies. The Oracle Standard Edition One database runs on single-processor servers and costs $5,995 for an unlimited number of users. Customers can also choose a named user license for $195 per user, with a minimum of five users.

Short Takes

SAS INSTITUTE INC. in Cary, N.C., said it's buying MARKETMAX INC., a Wakefield, Mass.-based vendor of retail planning and data analysis applications. . . . MIT named Jerrold Grochow as its vice president of information systems and technology, effective Nov. 1.

Siebel Bids to Broaden Use of Its CRM Software

Upgrades integration tools, plans new release of applications for next spring

BY MARC L. SONGINI
SAN DIEGO

FACED WITH a continuing decline in revenue, CRM software vendor Siebel Systems Inc. last week tried to soothe users by announcing a planned upgrade of its applications and further moves to simplify the process of integrating its products with other systems.

At its Siebel User Week conference here, San Mateo, Calif.-based Siebel detailed a new product strategy dubbed CRM for Everyone that's aimed at encouraging more pervasive use of its software throughout companies. The plan includes added industry-specific functionality that will be part of the Siebel 7.7 upgrade, expanded customer analysis tools and a set of hosted CRM applications that Siebel announced with IBM earlier this month.

CEO Thomas Siebel said during a keynote speech that Siebel 7.7 is designed "to get us where we need to go" to meet the needs of users. The upgrade, which is due next spring, will include a role-based user interface and other new features (see box). Siebel also is promising improvements in areas such as installation, configuration and testing in order to lower total cost of ownership for customers.

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QuickLink k1300
www.computerworld.com

Easier Upgrade

Burlington Northern and Santa Fe Railway Co., which now runs the vendor's Siebel 7 applications, plans to move to Version 7.7 in the future, said Bonnie Henn-Pritchard, assistant vice president of technology services at the Fort Worth, Texas-based company. But she added that Burlington Northern may first migrate to the current release, Siebel 7.5, to make the upgrade less complicated.

Henn-Pritchard said she is also interested in Siebel's Universal Application Network (UAN) integration technology if it proves to be the panacea for connecting to other systems that the company claims it is. In addition, Burlington Northern is eyeing Siebel's new hosted applications as a way to extend CRM capabilities to more end users. But Siebel needs to demonstrate exactly how all the pieces of its strategy fit together, Henn-Pritchard said.

Siebel continued its UAN push at the conference by announcing an upgrade of its Business Integration Applications software, a set of prebuilt routines for connecting CRM applications to other systems.

The company also said that by year's end, the software will become available for use with IBM's WebSphere Business Integration Platform technology and Microsoft Corp.'s BizTalk Server business-to-business tools.

Different Needs

Cindy Minter, assistant general manager of IT at the Modesto Irrigation District, a water and electric utility in Modesto, Calif., said Siebel is taking the right direction with UAN, as long as it ensures that the packaged integration code will allow flexibility for the unique needs of different users. "No two power companies are the same," she noted.

Siebel's biggest challenge with UAN is to show widespread adoption, said Erin Kinikin, an analyst at Giga Information Group Inc. in Cambridge, Mass. Most users still view UAN as being in the experimental phase, she said.

Siebel currently has about 35 UAN customers, company officials said. Nimish Mehta, group vice president of UAN, said Siebel has been building up its consulting and technical support capabilities for the technology and is "delighted" with the progress it's making on sales. **42045**

PRODUCT FEATURES

Siebel 7.7

- **A role-based user interface** with guided navigation tools.
- **A dashboard-style console** tailored for use in branch offices of banks.
- **A customer loyalty application** designed to help users identify profitable customers and optimize marketing of products and promotions to them.
- **Upgraded analytic applications**, sold separately, with full support for Web services and integrated data mining and predictive analysis capabilities.

Proving That CRM Projects Pay Off Isn't Easy, Users Say

SAN DIEGO

Calculating exact return on investment figures for CRM rollouts can be tricky, said several IT managers at the Siebel User Week conference. And that can make it difficult to sell projects in the current IT spending environment, where every dollar has to be justified, they added.

Attendees said CRM installations often provide intangible benefits, which can make the ROI math a bit fuzzy.

"We've achieved a lot of return on investment, [but it's] mostly soft," said Edward Garry, vice president of CRM solutions at Quick & Reilly Inc., a financial services firm in New York. "It's somewhat difficult to figure out ROI for CRM, and it's not unique to Siebel."

Quick & Reilly, a subsidiary of FleetBoston Financial Corp., runs Version 6 of Siebel's sales and customer service software. Garry said that after using the software to create unified sales procedures, Quick & Reilly saw a spike in the number of leads its sales force was able to obtain. But, he added, a number of other factors were also involved, making it hard to measure the software's contribution.

"You need metrics to know what is going on [with ROI]," said Bonnie Henn-Pritchard, assistant vice president of technology services at Burlington Northern. But CRM systems often provide benefits that are "more qualitative than quantitative," such as making it easier for customers to do business with a company, she said.

EMI Industries Inc., a Tampa, Fla., maker of food-handling equipment for supermarkets, runs a midmarket version of Siebel's call center software. David Hahmann, a vice president at EMI, said the company expects to recover its investment of less than $1 million within three years through cost reductions and revenue increases.

But ROI wasn't a big concern for EMI, Hahmann added. Its main goal was to get so far ahead of its rivals in using CRM-enabled business processes that they wouldn't be able to catch up, he said.

– Marc L. Songini

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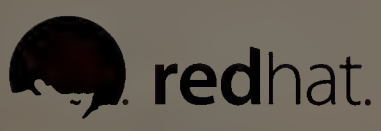

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HP e3000 Users Are Facing Tough Migration Choices

Software vendors have varied plans for porting MPE apps to new platforms

BY PATRICK THIBODEAU

HEWLETT-Packard Co.'s decision to end support of its HP e3000 system is forcing users such as Greg Brown, IT manager at Peerless Pump Co., to make some very difficult decisions affecting his entire IT infrastructure.

The HP e3000 runs a proprietary operating system and database and is a platform for many third-party business applications. The vendors of those applications, many of which provide core financial and health care systems for HP e3000 users, are porting to other operating systems.

But the vendors are all over the map with their porting plans, which may limit a user's HP e3000 platform migration options. Some are offering only one operating system and database migration path, while others are offering a range of choices. Brown's ERP vendor is in the latter category, but the migration is still a tough decision.

The vendor, ExegeSys Inc. in Salt Lake City, said last week it will have its system ported to HP-UX, Windows and Linux early next year and to IBM's AIX at an undetermined later date.

Brown said he doesn't think Windows is stable enough to run a robust business system. Linux has appeal, but it's still new, he said. HP/UX "is probably the most data center-worthy operating system," Brown said, but added that he thinks its market penetration has peaked and wonders about the future of Unix in the long run.

"What you always like to look for as an IT manager is, five to 10 years from now, what are going to be the pervasive technologies?" said Brown, whose Indianapolis-based company makes pumps used in fire suppression and in the agricultural and chemical industries. "I like to stay in the middle of the pack, where things are supported," he said.

Scott & White Health Plan moved to the HP e3000 in the early 1990s after picking a health care management system developed by Amisys Synertech Inc. in Rockville, Md. The HP e3000 was the only system Amisys supported at the time.

Troy Stillwagon, IT director at Temple, Texas-based Scott & White, said his company decided to continue with Amisys after it ported the application to HP-UX. But Stillwagon wants the vendor to support other operating systems, too.

"We think the viability of the company and their ability to maintain market share will be better supported if they sell it on many platforms instead of just one," said Stillwagon. Amisys isn't ruling out support for other platforms and is assessing customer and market demand, a company official said.

Mitchell Humphrey & Co. in St. Louis has offered its financial application on the HP e3000 as well as Windows for over a decade. It's migrating clients to Windows, and so far, it hasn't had a large client opt out of taking that approach, according to Tim Kiely, the company's business development manager.

But Jim Roberts, chairman of the Mitchell Humphrey user group and financial systems project manager at the Virginia State Department of Mental Health in Richmond, said there are users who are interested in a Unix operating system and Oracle database combination and see a Windows-only choice as limiting.

HP's preferred migration option is HP-UX. It has developed a kit that can convert an HP e3000 into an e9000 and is offering incentives such as trade-in and trade-up rebates for series 9000 servers and storage, hardware loaner programs and free conversion to HP-UX. **42026**

Weighing Options

HP is ending support for its proprietary e3000 system in 2006. Users are considering their choices:

Homesteading: A frontier term that refers to staying on the e3000 after HP ends support for it.

Jury-rigging: It's possible the HP e3000 operating system, MPE, could be emulated on other HP hardware systems. Vendors are assessing demand for an emulator.

Getting out of Dodge: Migration entirely off HP e3000 to HP-UX or another system. But support of application vendors is key.

Scare Tactics No Longer Guarantee Security Funding

BY DAN VERTON
NEW YORK

Chief security officers used to be able to get the funding they wanted for critical IT security projects by using newspaper clippings detailing security failures that cost other companies millions of dollars.

Those were the good old days, IT security managers said at the Cyber Security in the Financial Services Sector Summit here last week. Budgeting for security today is a lot more complicated.

"Responsibilities are increasing, the time pressures are increasing, and we're under increasing legal and regulatory pressures. The only things that are not increasing are our funding and staffing levels," said Gene Fredricksen, vice president for information security at Raymond James Financial Services Inc. in St. Petersburg, Fla. "It requires us to rethink how we budget. The old fear, uncertainty and doubt model doesn't seem to be working anymore. We can't scare our senior management into giving us money."

But that doesn't mean that senior executives aren't interested in security, other security managers said. On the contrary, many senior executives and corporate boards with control of corporate purse strings are simply demanding more information on the elusive return on investment and overall business benefit of incremental increases in security spending.

"I need to get [my board of directors] to calm down," said Dave Cullinane, chief information security officer at Seattle-based Washington Mutual Inc. The new regulatory environment is affecting IT security priorities more than anything else, he added.

However, "I do find myself more and more trying to show [the board] that there is a valid [ROI]," he said. "As of Jan. 1, I have to start quantifying losses so that I can build a two-year and a three-year database, so that in 2007 we can decide how much money to set aside to cover [those losses]. So I'm not having much trouble convincing senior management. I'm having much more trouble trying to figure out how to do [ROI] the right way."

Good luck, said Bruce Moulton, vice president of information security business strategy at Symantec Corp. According to Moulton, calculating an accurate, meaningful ROI for security "is out of reach." Because of all the unknowns that must be taken into account, ROI simply can't be calculated reliably, he said.

Moulton also noted that budgets are tight and spending must be done selectively. And that might have security architecture implications, he said.

"We might end up protecting some things and not protecting other things," said Moulton. He added that some companies may find themselves partitioning their networks into protected data and "sacrificial" data based on prioritized spending.

David Furnas, senior enterprise security engineer at Leicestershire, U.K.-based Deltanet International Ltd., said it's crucial to win senior management's confidence that spending requests aren't going overboard.

"It's important to set their expectations such that you're not going to them with pie-in-the-sky requests that are completely off the mark based on your business needs and based on the regulatory environment in which you have to operate," said Furnas. **42025**

"The old fear, uncertainty and doubt model doesn't seem to be working anymore."

GENE FREDRICKSEN, VP FOR INFORMATION SECURITY, RAYMOND JAMES FINANCIAL SERVICES INC.

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Financial firms are wrestling with a slew of new state and federal laws and regulations:
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BRIEFS

Three CA Execs Quit After Inquiry

Computer Associates International Inc. said its chief financial officer and two other finance executives are leaving after a preliminary investigation into the software vendor's past accounting practices. CA said it asked the executives to resign after the inquiry determined that revenue from some software sales was booked prematurely during the fiscal year that ended March 31, 2000. (For more details, go to our Web site: QuickLink 41981.)

Jury Ruling Spurs Browser Changes

Microsoft Corp. said it's making "minor changes" to its Internet Explorer Web browser after a U.S. District Court jury ruled against it in a patent infringement suit filed by Chicago-based Eolas Technologies Inc. and the University of California [QuickLink 40579]. The changes, which are due to be completed early next year, will modify the way Internet Explorer handles some Web pages using ActiveX controls.

Sybase Upgrades Enterprise Database

Sybase Inc. announced an upgrade of its enterprise-class database software that includes new self-management capabilities, performance improvements and expanded support for Web services and XML. Dublin, Calif.-based Sybase said the Adaptive Server Enterprise 12.5.1 release will become available this week.

Short Takes

MICROSOFT was awarded a patent for an instant messaging feature that alerts end users when other people are typing messages to them. . . . INFORMATION BUILDERS INC.'s iWay Software Inc. unit in New York said it's buying the software adapter business of Actional Corp. in Mountain View, Calif.

BEA Pitches Shared Security Services Model

Middleware allows delegation of security, access-control management functions

BY JAIKUMAR VIJAYAN

BEA SYSTEMS INC. this week will roll out middleware technology aimed at helping companies build a shared security infrastructure for authenticating, authorizing and auditing user access to both Web-based and legacy applications.

The technology is intended to eventually eliminate the need for companies to embed separate security and access-control functions for each application.

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QuickLink k1600
www.computerworld.com

Instead, BEA's new WebLogic Enterprise Security (WLES) product will allow companies to delegate the task of managing and handling such functions to a shared application security service, said George Kassabgi, vice president of application security at the San Jose-based company.

Such a shared environment "would most definitely be the Holy Grail," said Val King, manager of information security at Canadian Pacific Railway Ltd. in Calgary, Alberta.

But despite the need for such technologies, there are enormous challenges involved in linking disparate systems using a shared security service model, users and analysts said. For example, the ability of a product such as WLES to broker identity and security information with older applications is totally untested, King said.

A New Mind-set

"The kind of space that BEA is dealing with is complex enough that a lot of people have been satisfied with workaround solutions," said Randy Heffner, an analyst at Forrester Research Inc. in Cambridge, Mass.

The use of technologies like WLES will also require a fundamental change in the way companies approach application development, said Earl Perkins, an analyst at Meta Group Inc. in Stamford, Conn.

These technologies eliminate the need for developers to code separate access and security functions with each new application. As a result, changes have to be made in the development process to accommodate the exchange of authentication and authorization information between the application and security service layers, he said. "There's a cultural mind-set that needs to change in the way applications are developed," Perkins said.

Even so, technologies such as WLES address an important need, said Robert Levine, president of Sena Systems Inc. an Iselin, N.J.-based systems integrator.

"A number of our leading clients are looking at ways in which they can centralize authorization decisions by pulling them out of applications and making them an infrastructure component," said Levine. The goal is simplified application security policy development and enforcement, he said.

A core aspect of WLES is its ability to work with multiple Web access management products and other security management tools that may be used for authentication and authorization functions, Kassabgi said. The idea is to allow companies to take existing technology and code and turn them into a distributed enterprise security service with minimal disruption, he said.

BEA isn't the only company — nor was it the first — to try to move users to a shared security services infrastructure.

Quadrasis Inc. in 2001 was one of the first to release a product aimed at helping companies unify and centralize security policies. The Waltham, Mass.-based company's Security Unifier product was pitched as a tool for brokering security functions across a range of applications, but so far it has failed to gain much market attention.

IBM moved in that direction by embedding its WebSphere application server software with its Tivoli Access Manager technology. Some vendors of Web access management products, such as Netegrity Inc. in Waltham, Mass., have also been expanding their Web single sign-on technologies for use in legacy environments. Oracle Corp. is expected to make an announcement similar to BEA's next week.

BEA is trying to differentiate itself by making its technology as broadly interoperable with other products as possible, Heffner said. "The difference is that BEA's is more of an architectural approach. And that has a lot of merit," he said. 42028

Shared Security

BEA's WebLogic Enterprise Security product is designed to:

ENABLE a service-oriented approach to delivering application security.

PROVIDE centralized control and management of authentication, authorization and access-control policies.

ELIMINATE the need to code separate security policies into individual application environments.

IBM Upgrades ID Management Line

IBM last week upgraded its Tivoli line of identity management products, adding new features designed to allow companies to use ID information more efficiently and securely in changing business conditions.

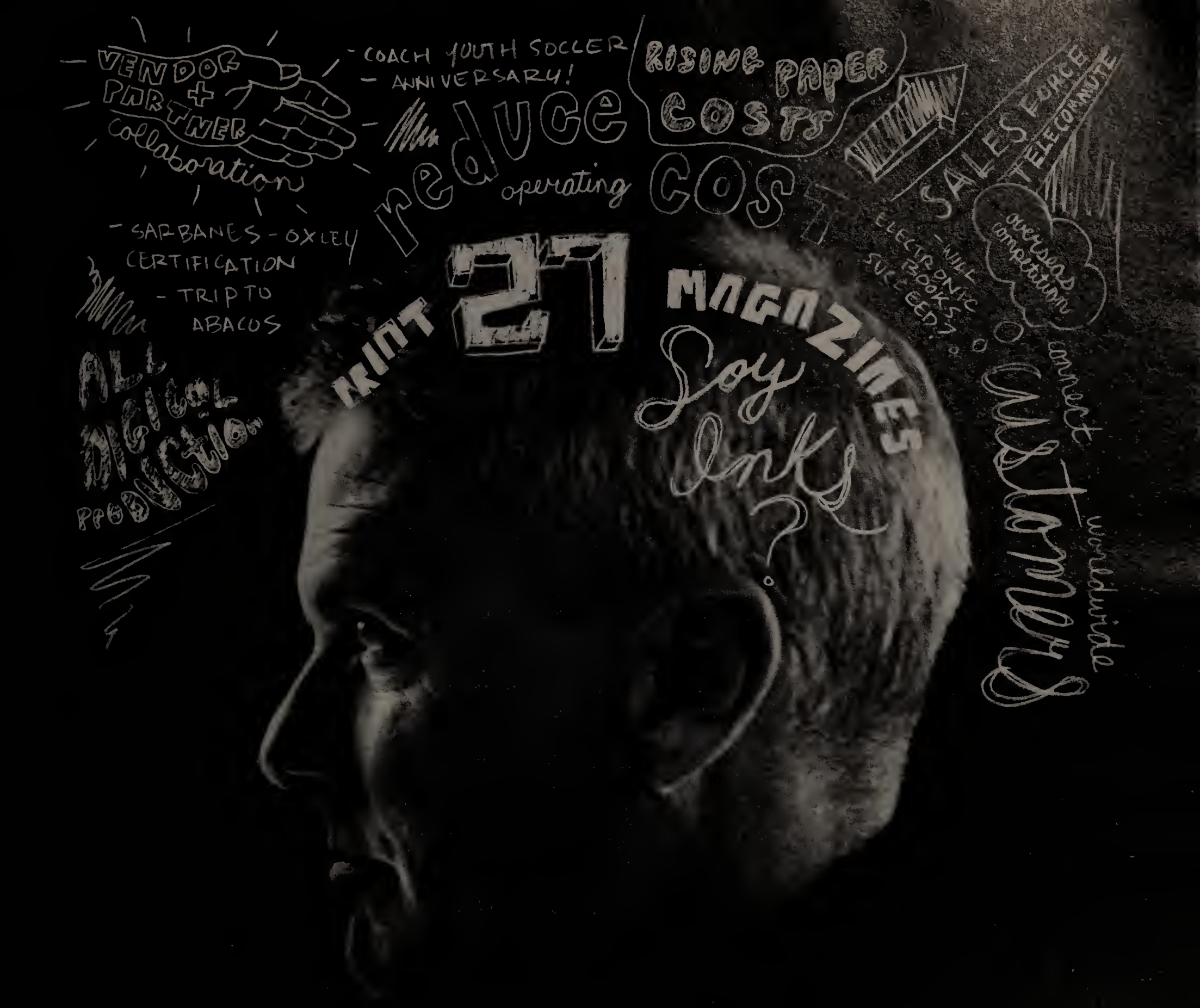
The upgrades include the following:

- IBM Tivoli Access Manager Version 5.1, featuring a new Dynamic Rules Engine for automatically pulling user information from multiple sources to help make access-control decisions involving complex transactions. A new Dynamic Group Support feature is aimed at making it easier for companies to respond to organizational changes, such as mergers and acquisitions, involving ID information.
- Tivoli Identity Manager Version 4.5, offering a new automated workflow engine for managing and enforcing policy based on a user's changing status within a company.
- Tivoli Privacy Manager Version 1.2, with support for real-time privacy and security compliance checks of up to 100 transactions per second.

The changes are part of IBM's broad effort to enable all of its products to participate in an on-demand computing environment, said Jeff Drake, director of security strategy at IBM. "[ID management] products need to be very flexible. They need to be able to synchronize, receive and send data into business processes" more efficiently, Drake said.

IBM's identity management efforts are well focused, said Val King, information security manager at Canadian Pacific Railway. The railway uses Tivoli tools, among others, to control and secure access to its customer portal site and to manage passwords for its 18,000 employees.

– Jaikumar Vijayan



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Microsoft Unveils Its Plans for Web Services Management Packs

Software maker to add set of modules to Microsoft Operations Manager 2004

BY CAROL SLIWA

MICROSOFT CORP. disclosed last week that the next version of its operations management software will introduce a set of packages to monitor Web services.

Microsoft Operations Manager (MOM) 2004, due next summer, will include an end-to-end Web services management pack for monitoring the availability and performance of services that span multiple systems and applications, according to company officials. There will be no separate charge for the management pack, which will ship with MOM, said David Hamilton, director of Microsoft's enterprise management division.

In addition, the company is planning a set of additional management packs for key elements of the Web services stack, such as the UDDI directory protocol and the .Net Framework, Hamilton said.

Eric Rudder, senior vice president of servers and tools at Microsoft, told *Computerworld* in August that the company would enter the Web services management market with compelling offerings to monitor the services and use them to manage their other systems [QuickLink 40506].

But at the time, Microsoft was still collecting feedback to gain an understanding of customer needs in the area of Web services. Hamilton said the decision to introduce management packs is based on that customer feedback.

NEW PRODUCTS

Systems Management Server 2003
- Release to manufacturing: Oct. 22
- Launch: Nov. 11

Microsoft Operations Manager 2004
- Private beta: Released two weeks ago
- Public beta: Due by year's end
- Ship date: Summer 2004

"They're still learning what they can do in the Web services space," he said, noting that the need for Web services management has been basic so far. Hamilton said customers mainly want to know if a service is up or down.

Bob Muglia, senior vice president of Microsoft's enterprise management division, said customers eventually will want to understand the cause of response-time delays and the level of resources taken up by different attributes of the application. He said Microsoft will enhance the product over time, particularly once it completes work on the System Definition Model, an XML-based schema that will define the resources on which an application depends, its operational behavior and the manner in which it's deployed.

In addition to its own Web services management efforts, Microsoft is working with other vendors to ensure that .Net-based Web services written for the Windows operating system can be managed in a heterogeneous environment. MOM management packs for Web services from Actional Corp., AmberPoint Inc. and Computer Associates International Inc. will be unveiled at Microsoft's Professional Developers Conference in Los Angeles later this month, according to Hamilton.

Also due at the conference are connectors to enable users to integrate MOM with third-party management products from IBM's Tivoli division, CA and System Management Arts Inc. via a Web-services-based framework that enables bidirectional alert forwarding and synchronization.

Hamilton added that a private beta of MOM 2004, which doesn't include the Web services management pack, began shipping two weeks ago. A public beta is expected by year's end, with general availability planned for mid-2004.

Microsoft officials also disclosed last week that the company's long-awaited Systems Management Server 2003 will be released to manufacturing on Oct. 22. It's scheduled to launch on Nov. 11 at an IT forum in Copenhagen. The new version features enhanced support for remote PCs, tight Active Directory integration and support for non-PC Windows devices. **42038**

Continued from page 1

Patches

Amy Carroll, a director in Microsoft's security business unit, said the company will reduce the number of patch installers from eight to two: one for the Windows kernel, and one for Microsoft applications.

In addition, Microsoft is promising better-quality patches and rollback capability in case application incompatibility problems arise. Patches will also be reduced in size by up to 80% to aid users on slow networks, and the number of reboots needed for patch installation will be cut by up to 30%, reducing server downtime, Ballmer said.

But the challenge that Microsoft faces as it attempts to ease the patch management process was apparent when Ballmer polled partners about the company's free Software Update Services (SUS), which corporations can use to automate patch distribution to employees on a scheduled basis. The vast majority of over 4,000 partners in the keynote session indicated by a show of hands that they didn't use SUS 1.0 or hadn't heard of it.

"It will scan the machines, let you know what needs to be patched, apply the policy, roll it out," Ballmer explained, calling SUS "the corporate equivalent of Windows Update for the consumer market."

Microsoft plans to release in the first half of next year Version 2.0 of SUS, which will add support for more Microsoft products. SUS 2.0, which is complementary to Systems Management Server 2003, will also feature enhanced reporting capabilities and improved administration controls.

"We're definitely going to take a look at it," said Samith Kollipara, a technology consultant at Hanigan Bjorkman Ecklund LLP in Lincoln, Neb. Like many conference attendees, Kollipara said he was unaware of SUS until last week.

To lend more predictability to the patching process, Ballmer said Microsoft will release nonemergency patches no more than once per month. Emergency patches, however, will continue to be released on an immediate basis.

MICROSOFT'S SECURITY ROAD MAP

This year	First half 2004	Second half 2004
■ Monthly patch releases	■ Central Microsoft Update site for all patches	■ Windows Server 2003 Service Pack 1
■ Security seminars, monthly webcasts	■ Release of Windows XP Service Pack 2	■ Next-generation safety and inspection technology
■ Report on how Microsoft secures its systems	■ Release of Software Update Services 2.0	■ Internet Security and Acceleration Server 2004
■ IT Pro Security Zone online site	■ Patching enhancements	

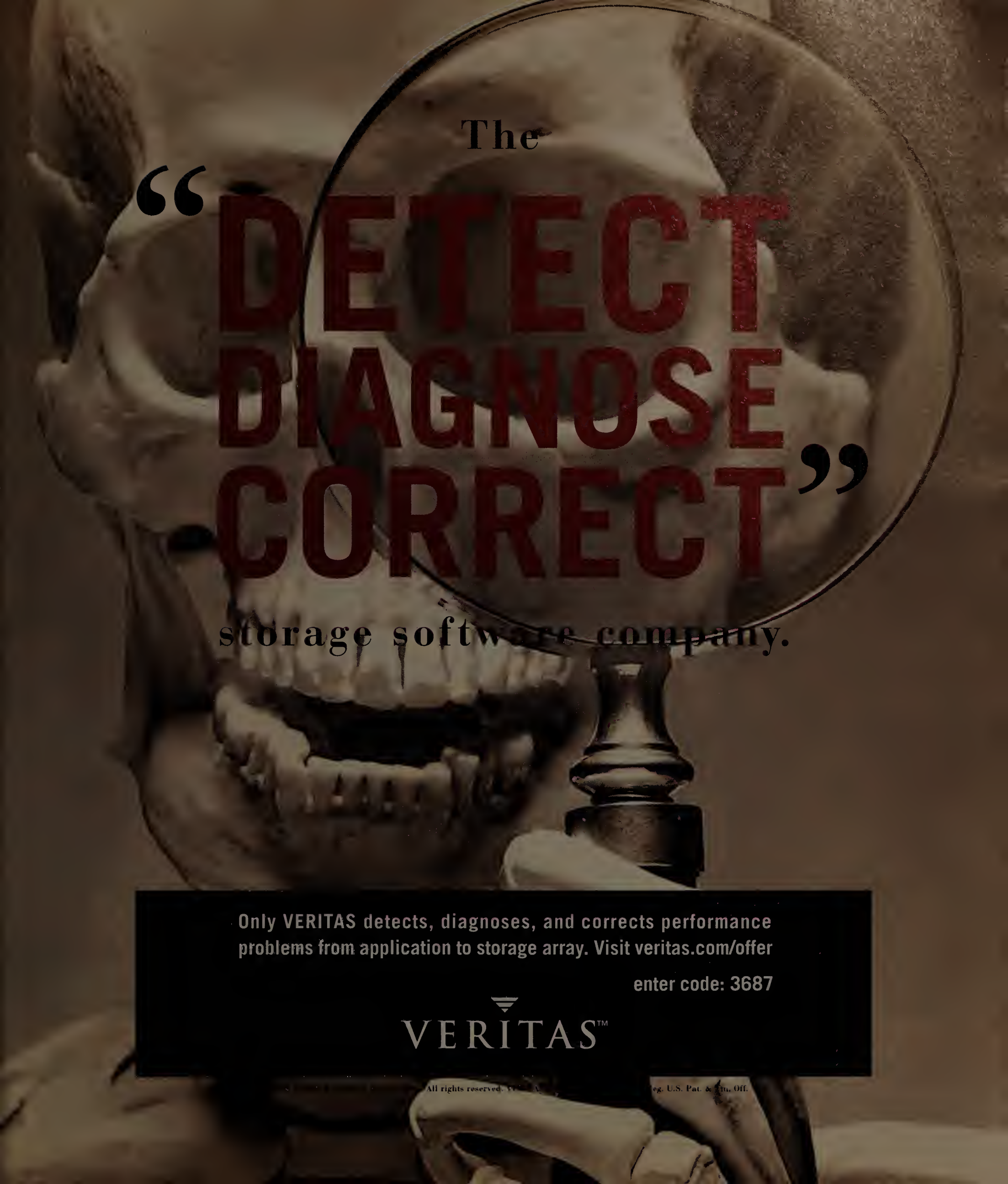
To help customers with older systems, Microsoft plans to extend security patch support until June 2004 for Windows 2000 with Service Pack 2 and for Windows NT 4.0 Workstation with Service Pack 6a.

But patching isn't enough to protect customer systems, Ballmer said. So Microsoft plans new safety technologies that focus on client systems and the network perimeter to provide protection against malicious e-mail and Web content, viruses and worms, and buffer overruns, he said.

The safety technologies will first ship in Service Pack 2 for Windows XP, which will go into beta by year's end with a planned ship date in the first half of next year. Improvements will include an updated Internet Connection Firewall that's turned on by default.

New safety technologies will also be included in Service Pack 1 for Windows Server 2003, which is due for a beta release in the first half of next year, with a target ship date in the second half of next year. Perimeter-inspection technology in the server operating system will allow companies to block laptops or other compromised systems from accessing the network, according to Microsoft officials.

Meanwhile, Microsoft will promote new education and training opportunities. A day-long developer security symposium will be held later this month at its Professional Developers Conference. Later this fall, free TechNet Security Seminars will be held in cities around the world, and in November, the company will start monthly security webcasts. **42034**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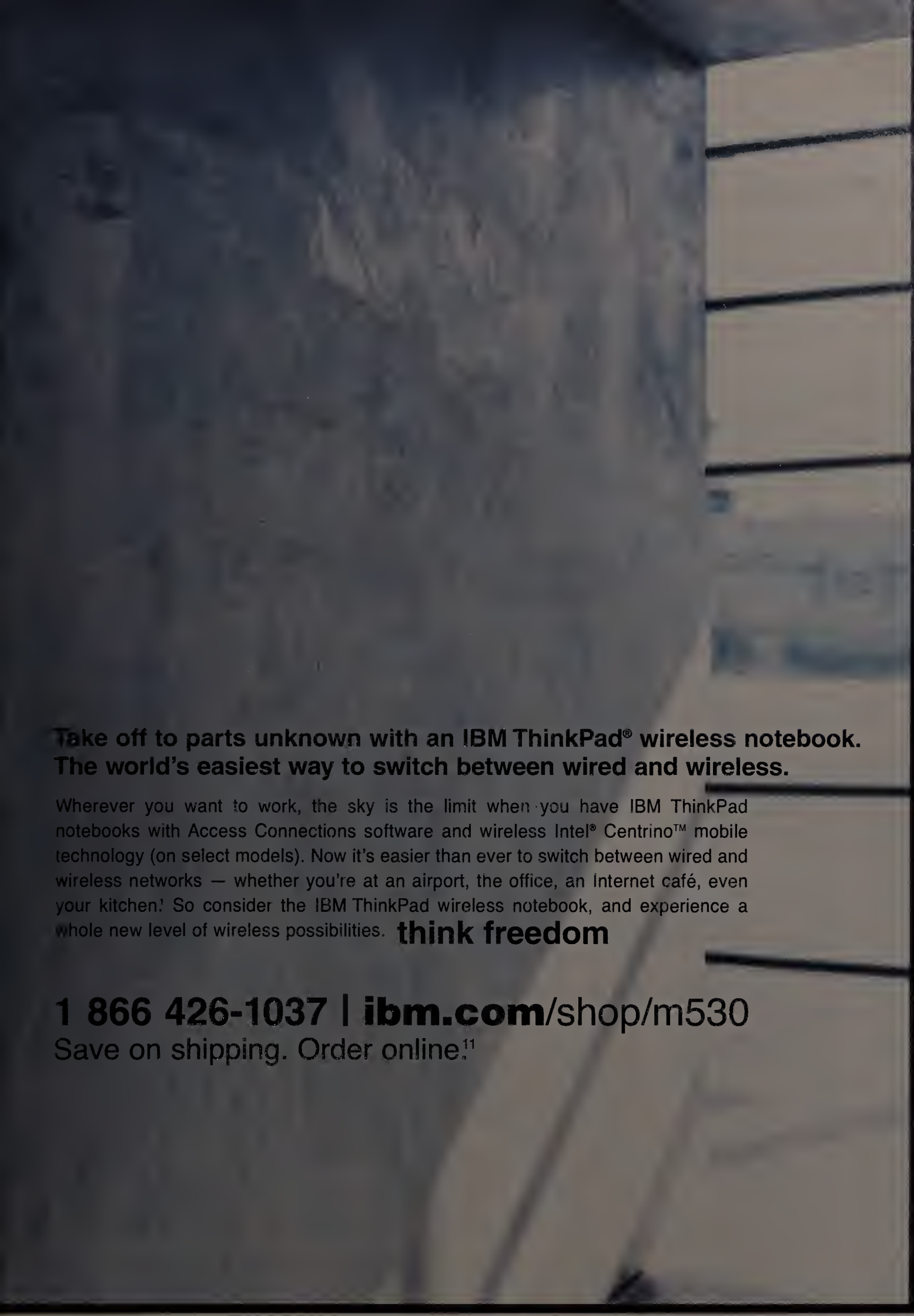

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Microsoft Releases Small-Business Bundles

Upgrades are based on Windows Server 2003; early adopters focus on added collaboration tools

BY CAROL SLIWA

Microsoft Corp. last week released two versions of its software bundle for small businesses, combining Windows Server 2003 with a variety of its other server-level products.

The Windows Small Business Server 2003 package will be sold in separate editions for the first time: an entry-level version that adds Exchange Server 2003 and two other products to the operating system, and a premium version that also includes Microsoft's database, firewall and Web-authoring technologies (see box).

But the component that appears to be generating the most excitement among some early users is Windows SharePoint Services. That product, which has been added to the small business bundle, lets workgroups create internal Web sites to share information and collaborate.

Until a few months ago, the 14 employees at Game Face Inc. in Tualatin, Ore., used e-mail messages with attachments to collaborate on the 100 or so proposals they produce for clients each year. Now that the executive training and recruitment company has installed Small Business Server 2003, workers can access, comment on and edit documents on a central server.

Game Face spent more than $30,000 on server software and hardware, desktop Windows and Office upgrades, cabling, and outsourced IT help in connection with the implementation. But Thomas Peterson, senior vice president of business development at Game Face, estimated that the company will save about $8,000 per month due to increased productivity.

The software is also expected to boost Game Face's revenue potential because workers can now track and respond to client inquiries more quickly. "This is helping us to not look like a small business," said Robert Cornilles, the company's president.

Gene Austin, general manager at Fischer-Herron Inc., a company in Orange, Calif., that does sales and marketing work for makers of food services equipment, said he spent almost two years hunting for software to help his workers electronically access and manage purchase orders, price lists and other business documents.

Austin said his company, which does business as The Fischer Group, migrated from Windows Small Business Server 2000 to the new version to get Windows SharePoint Services. The company spent about $20,000 to upgrade its systems, despite not having to pay anything for the software bundle because it had purchased Microsoft's Software Assurance license option.

For example, Fischer Group added more system memory, upgraded its PCs to a newer version of Windows XP Professional and hired outside workers to help develop its SharePoint site. But Austin said the company has been able to shift a full-time employee who was responsible for filing paper documents to a more productive job, and he predicted that the new system will also help its sales force become more productive. **41992**

TECHNOLOGY DETAILS

Windows Small Business Server 2003

Includes Windows Server 2003, Exchange Server 2003, Windows SharePoint Services and Microsoft Shared Fax Service
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Microsoft's Autonomic IT Plan Starts With Development Tools, Exec Says

BY MATT HAMBLEN AND CAROL SLIWA

Bob Muglia, *senior vice president of Microsoft Corp.'s enterprise storage and management divisions, is one of the architects of the autonomic computing plan that the software vendor announced in March [QuickLink 37220]. Muglia last week spoke with* Computerworld *about Microsoft's efforts to sell IT managers on its Dynamic Systems Initiative (DSI) approach.*

What differentiates DSI from the autonomic computing technology offered by other vendors? The key distinction we're making is that we're looking at what we can do to the developer tools to make it easy to build applications that, later on, can be managed through the operations part of the life cycle. When IBM talks about autonomic computing, they often talk about the resource-balancing nature of it, and that is something we're also focused on.

However, I'm less concerned about the use of computer resources in a data center and more concerned about the people cost of developing, deploying and operating applications. By capturing management knowledge at the development stage of an application as we do, there's a lot to be done to lower the cost of operating these systems.

How will you get users interested in the DSI concept in this economy? People have to see value in technology producing business results. If you have pre-existing systems that are running, in a lot of senses the cheapest thing you can do is continue to run them and not make changes. You'll always incur cost when you make changes, and the change doesn't always benefit you the way you want. [So we plan to] generate excitement for DSI by making sure people understand that this is the place where they can deliver business value, and in the process, they can roll out applications more quickly and manage them more effectively. As a platform vendor, we think holistically about that. We think about enhancing development tools, what we do in the operating system, what we do within the management pieces, and we think there's a lot of advantage in having that top-to-bottom approach.

What's the revenue potential of DSI? I can talk about what our objectives are, and our objectives are to provide a better environment for people in the Windows platform. [DSI] is not revenue-driven in the sense of driving revenue for management tools, but [it is] focused on making Windows Server more competitive in the marketplace. That's the foundation of what we need to do to grow our business. **41979**

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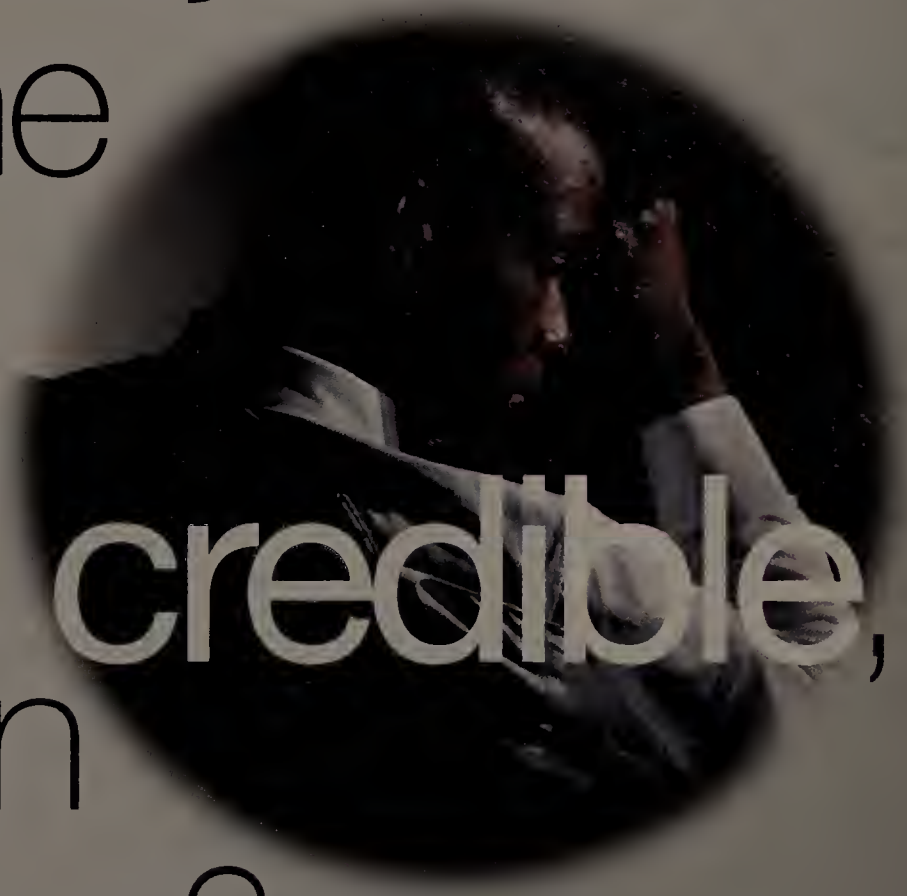

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DHS Broadens Biometrics Use for Border Control

Department may spend over $30M for technology

BY DAN VERTON
WASHINGTON

The U.S. Department of Homeland Security has jump-started an aggressive biometrics deployment program to help fill gaps in U.S. border security procedures.

The DHS last week announced that it reached a $3.5 million agreement to buy 1,000 optical-stripe read/write drives and biometric verification systems from Information Spectrum Inc. (ISI), an Annandale, Va.-based subsidiary of Anteon Corp. The equipment will be used in the U.S. Visitor and Immigration Status Indication Technology program. The contract comes on the heels of an announcement earlier this month that the department had signed one of the largest contracts in history for biometric fingerprint-scanning technologies — worth up to $27 million — with Minnetonka, Minn.-based Identix Corp.

Mark Heilman, executive vice president of corporate development at Anteon, said that although biometric technology has progressed substantially over the past several years, "the jury is still out" in terms of its ability to handle a challenge as large and complex as homeland security. "There are a number of technologies out there, and I think DHS is still looking for the right mix," Heilman said. "I think there will be some choices made during the next year or so that will shake out the industry."

Heilman said the contract gives the DHS the flexibility to use a number of biometric systems, including the Identix fingerprint system or an iris scan.

The ISI optical drives and biometric verification software will be deployed at ports of entry around the U.S. for operation on existing DHS systems. Using the software, border-crossing agents will be able to read the data encoded on any of the more than 13 million permanent-resident and border-crossing cards issued by the U.S. government and then authenticate the biometric data stored on the cards and alert DHS inspectors to the presence of possible counterfeit cards.

Meanwhile, through a five-year blanket purchase agreement that could be worth up to $27 million, the DHS said it will begin deploying Identix's TouchPrint 3000 live-scan fingerprint booking stations and desktop systems to support the Citizenship and Immigration Services (CIS) program as well as other departments within the DHS.

The CIS program will use the Identix fingerprint-scanning system to digitally capture and electronically submit fingerprint images from immigration applicants to the FBI. The fingerprints will then be used to conduct criminal background checks.

Frances Zelazny, a spokeswoman for Identix, said the DHS has already issued its first order, totaling more than $2 million, under the contract and plans to extend the contract to its overseas screening operations. **41964**

DHS Biometrics Contracts

VENDOR: Information Spectrum Inc.

PRODUCT: 1,000 optical-stripe read/write drives and biometric verification systems

CONTRACT VALUE: $3.5 million

VENDOR: Identix Corp.

PRODUCT: TouchPrint 3000 live-scan fingerprint booking stations and desktop systems

CONTRACT VALUE: Up to $27 million

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Grocer Uses Content Management To Standardize Store Operations

BY TODD R. WEISS

Regional supermarket chain Giant Eagle Inc. is installing a content management and collaboration system at all 214 of its grocery stores in an effort to ensure that business operations are consistent from store to store.

The Pittsburgh-based company, which does business in Pennsylvania, Ohio, West Virginia and Maryland, announced details of the project last month along with software vendor Open Text Corp. Giant Eagle began rolling out Open Text's Web-based Livelink tools in May and has them in place at about 70% of its stores. The deployment is due to be completed within 12 months, Giant Eagle said.

The grocer is also testing a real-time Web conferencing application developed by Waterloo, Ontario-based Open Text. The packaged software replaces a prototype content management system that Giant Eagle built three years ago.

Jack Flanagan, vice president of business systems at Giant Eagle, said the company's management realized it had to do a better job of fostering uniform operating practices in order to meet a goal of increasing annual revenue from $5 billion now to $9 billion within four years.

In the past, Giant Eagle sent out memos on paper, Flanagan said, but that often led to communication delays or the spread of misinformation. In comparison, the content management system lets store workers use PCs to search databases of information about operating policies.

The company is running the Open Text software on Windows 2000 servers and has linked those machines to an Oracle database server that's based on IBM's AIX version of Unix. Giant Eagle officials didn't disclose the expected total cost of the project, but they said the grocer has spent about $2.3 million on the initiative over the past three years.

Rich Levine, Giant Eagle's senior project manager for information systems, said the company evaluated products from about 20 software vendors. He said that in addition to data workflow and indexing tools, Livelink includes threaded discussion forums that let workers collaborate and exchange information.

Rob Lancaster, an analyst at The Yankee Group in Boston, said content management vendors are making inroads with users in markets other than finance and health care, two early adopters of the software. The integration of collaboration capabilities has become a key selling point, Lancaster added. "It brings content management a step closer to knowledge management," he said. **41978**

Food Content

Giant Eagle's content management system:

servers at the company's data center and PCs with Windows 2000 or Windows NT 4.0 at stores.

about product promotions, departmental display layouts, and corporate policies and procedures.

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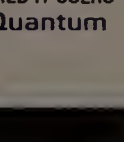

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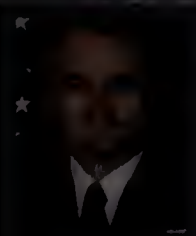

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MARYFRAN JOHNSON

Gridlock Reality

IF YOU TAKE A BIG SWIG of vendor Kool-Aid from IBM, Hewlett-Packard, Sun Microsystems or Oracle these days, it'll taste a whole lot like grid computing. The actual flavor might be labeled (or mislabeled) as something else: utility, on-demand, autonomic, adaptive or even pervasive computing. But the upshot will be this notion of making miraculously cost-effective use of idle networked computing resources.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

If you believe the various descriptions of grid (everybody has a favorite), we're heading toward an IT nirvana where processing power and applications will be dynamically reconfigured and delivered from one big virtual pool of resources. Data will be secure but available from anywhere, and network complexity will be tucked out of sight.

It'll be so great when it gets here.

Despite the full-court press from vendors, skepticism prevails among business and commercial users, including some senior IT executives on a panel I moderated recently. We were talking about where technology is heading, comparing practical realities to market spin, and I asked their opinions about what is today's most hyped technology, fully expecting it to be Web services. "Grid computing," everybody said.

What seemed to irritate my panelists most was the answer-to-your-prayers urgency of vendors with a few new products to push.

"Marketers are exploiting the perception that grid is an advanced technology and in many cases are applying the term to offerings that, at best, have only a tenuous relationship with the strict definition of a grid," wrote Gartner analysts Carl Claunch and Anne Powell earlier this year. The analysts cautioned that grid computing was "well on its way to the Peak of Inflated Expectations" (I swear, I'm not making that up) in the Gartner "hype cycle model."

Indeed, the grid projects making headlines tend to be group efforts involving universities, science or engineering companies and hefty federal grants. So when Oracle CEO Larry Ellison claimed a few weeks ago that half of his current database customers will be grid users in five years, he was just, well, being Larry.

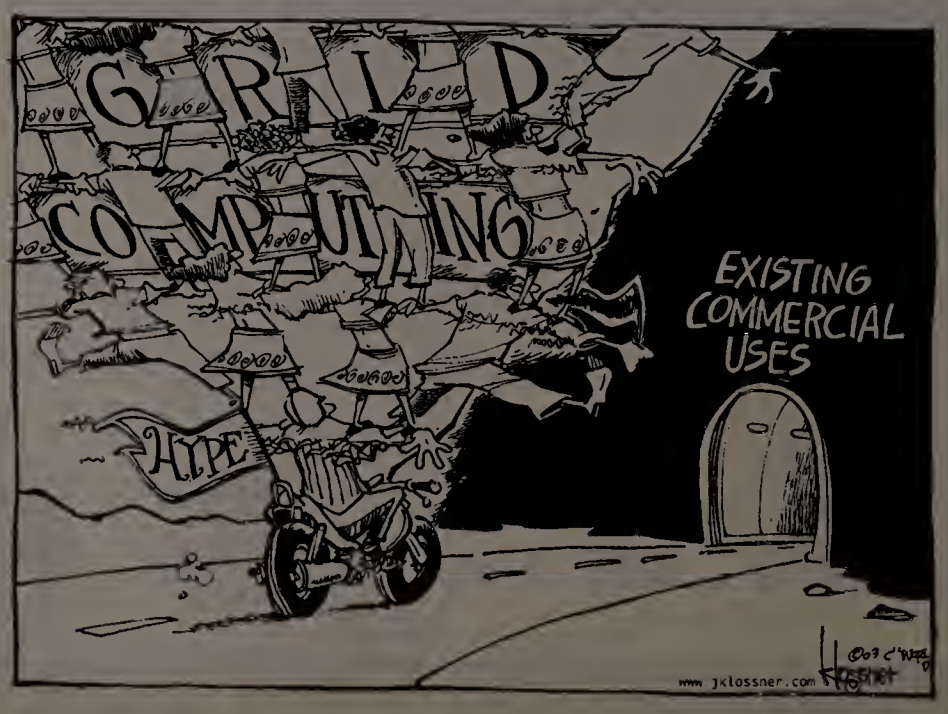
Despite some compelling projects, grid computing is many years away from everyday use in business. That's the conclusion of the story "Grids Extend Reach" (page 29), which examines the current state of this still-emerging technology.

What's keeping enterprise users at arm's length from grid computing? Quite a lot. For starters, the mystery pricing schemes, lack of management tools and fluid arrival dates for many of the announced products make it difficult to embrace. Few business applications were written with parallel processing in mind, which means major code rewrites for the rest of them.

The proprietary impulses of vendors also threaten to slow the adoption of grid computing, since open standards are so crucial to its operation. The first warning sign came last month, when Oracle announced that it was forming a consortium for developing commercial grid applications. Yet the Global Grid Forum, established in 1999, already has hundreds of members. How nicely Oracle plays with the Forum bears close watching.

The fact that grid computing is continuing to grow in its traditional strongholds — drug and biotech companies, universities and federally funded consortia — bodes well for it to mature eventually into serious business offerings.

But if you're inclined to pass on the vendor Kool-Aid for now, you're not missing much. **41990**



PIMM FOX

Going Digital Is Real Issue At the NYSE

YOU CAN SPEND TIME arguing about whether Richard Grasso should have been dumped as chairman and president of the New York Stock Exchange over his $139.5 million compensation package. But there's no dispute that spending $139.5 million would get the NYSE a nifty IT starter kit to eliminate floor traders, make irrelevant the concept of self-regulation and banish the clubby network of firms that make money doing what IT can do more efficiently.

The flap over Grasso's compensation is a distraction from the real issue facing the NYSE: whether to go completely digital.

There may be nostalgic and cultural considerations for maintaining a large hall on the tip of a small island where exchange members buy and sell shares of stock at the behest of investors. Taking orders over the phone and via handheld has matured to the point where billion-share days are no big deal. But although the NYSE has added technology trading systems such as OpenBook and Direct+, it hasn't gone as far as Nasdaq to make multiple quotes available to nonspecialist traders. More and more shares are being traded off the exchange floor. But many traders are worried that without an actual exchange, their profits will suffer. And while the NYSE has poured IT dollars into its operations, it has only propped up the existing structure, not remade it.

From an IT perspective, this is antiquated thinking.

Electronic commerce networks (ECN) such as Instinet Group Inc. and Archipelago Holdings LLC, known as ArcaEx, routinely serve institutional traders by offering an electronic marketplace to trade NYSE, American Stock Exchange and Nasdaq stocks. Indeed, these ECNs easily connect with Nasdaq's SuperMontage trading plat-

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form, where the majority of Nasdaq stocks are traded. The technology is so good that it can handle 10,000 transactions per second and has reduced order-execution costs by 20%. It's marketed to traders to help them trade NYSE stocks.

Regulatory oversight has been a consistent worry when considering the closure of the trading floor. Given the recent spate of U.S. Securities and Exchange Commission investigations into trading activities, an open floor full of traders appears to be no easier to police than anonymous mouse-clickers in bathrobes or "masters of the universe" in trading rooms around the world.

A move to an all-electronic trading environment would make it possible for separate groups of independent analysts to monitor trade flows, watch the spreads between prices and use real-time alarms to warn of irregular trading patterns.

The trouble, of course, is that with the pit gone and oversight embedded in the IT trading system, there would be no one left to earn $139.5 million. **41844**

DAVID MOSCHELLA

Users Must Set Standards For Products

FOR MORE THAN 50 years, IT customers have complained that their suppliers do a poor job of building standardized, interoperable products. Over the next decade, we will find out if the IT user community can do the job any better.

Through the 1980s, de facto vendor standards such as SNA, DECnet, MS-DOS and NetWare determined how most IT products were used. While efforts were made to link these systems, the results were spotty. "Islands of computing" became the dominant metaphor for the incompatibility that resulted.

During the 1990s, the largely accidental emergence of the Internet changed all of this, and the IT industry began to fulfill its promise. Through open standards bodies such as the IETF and the W3C, the underlying plumbing of the Internet has become increasingly interoperable. It's doubtful whether the major IT vendors would have ever sorted things out so effectively by themselves.

As evidenced by the emergence of the OASIS e-business standards group and the debate over J2EE and .Net, vendors and standards bodies certainly still have roles to play. However, over time, these groups will lose much of their current pre-eminence.

DAVID MOSCHELLA's latest book is *Customer-Driven IT: How Users Are Shaping Technology Industry Growth.* Contact him at **dmoschella@earthlink.net.**

Consider Web services. Although XML, SOAP, WSDL, etc., can do a good job of linking one application to another, they're inherently limited in that they don't understand the actual meaning of the data being processed, the so-called semantic content of the application.

Tim Berners-Lee and the W3C are trying to address this limitation by enabling the development of general-purpose, rules-based Semantic Web systems based upon the Resource Description Framework. It's an interesting and theoretically sound concept. However, right now it looks like the real-world standardization process will remain the task of IT users and, at least initially, will be done at an industry-specific level.

Today, just about every major business sector has launched some sort of standards initiative. Prominent examples include RosettaNet (electronics), ACORD (insurance), UCC (retail), STAR (automotive), IFX (finance) and the health care terminology database recently endorsed by the U.S. Department of Health and Human Services. In many ways, the task of these groups is to standardize the top levels of the IT industry stack. It will be one of the next great e-commerce frontiers.

As with most IT standards processes, success is by no means assured. Developing and implementing industry-specific standards has significant direct costs and requires scarce technical talent.

In contrast, many of the benefits are, by definition, aimed at industries as a whole and aren't usually designed to favor one competitor over another. This can be a formula for inertia and delay; Wal-Mart's aggressive leadership in the use of radio frequency identification technology is important because it spurs adoption of a standard.

History provides reason for optimism. Over the years, customers have established interoperable, industry-specific IT standards in areas such as retail point-of-sale systems, credit cards and automated teller machines. The challenge today is to replicate these successes on a much wider and more rapid scale. Arguably, only RosettaNet has reached a critical mass of usage and momentum.

Unfortunately, many IT departments are still much more focused on general-purpose vendor standards than the industry-specific projects that are just as important to their businesses. Over time, these priorities will change, with IT professionals taking the lead in this next great phase of IT standardization and growth. **41845**

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READERS' LETTERS

Readers Are Able to Recognize Bias

MARYFRAN JOHNSON'S editorial ["A Question of Credibility," QuickLink 41489] exposing the perils of "sponsored research" from organizations such as Forrester and the likely bias such information can contain is on the money. However, she ignores a simple truth: Someone – and it is usually *not* the press – pays the bill for virtually all such research. We lack any truly independent product review entity in this business. In fact, many industry publications are owned by conglomerates that offer similar "proprietary research reporting" services.

Thus, it can be said that the vast majority of IT-related research is sponsored in some form. The professionals in IT and the business C-level types who read these research reports and the press accounts about them already accept that there's no such thing as a free lunch – that it's truly buyer beware.

Virtually all of the research houses have a bias toward the providers or suppliers of technology – their community of support – and they aren't always going to tell you who paid for the underlying research. If you refuse to cite any one such report, then arguably, you must make this a blanket policy, one that would be extreme and unreasonable. Perhaps your reporting about such research should include phrases such as "a recently released report, prepared by XYZ Research on behalf of one or more software vendors featured in the report."

Some of these reports contain good and valuable information, if one reads between the lines and with understanding of the bias that most such paid research has. But more importantly, I believe your readership has the capacity to do so, without as much help as you believe you need to provide.

Robert W. Starinsky
Managing principal and owner, Tradewinds Group Inc., Oak Brook, Ill.

IF AN ANALYST REPORT takes a decidedly favorable view of a solution from a large company, I carefully consider the likelihood that said company subsidized its creation. I strongly applaud *Computerworld*'s position, as explained by Maryfran Johnson, to share only those reports that can be confirmed as offering independent and objective views. I have recently returned to your periodical, and moves like this will only make me a more avid subscriber.

Bruce Clarke
Sunnyvale, Calif.

Enough Bashing

IT'S TIME FOR Nicholas Petreley to find a new subject [QuickLink a3680]. Sure, his Microsoft-bashing was funny the first couple of times, but it's starting to get old. Since he's some sort of Linux guru, why doesn't he write about the benefits of Linux, or tell us how Linux does things better than Windows? All we get is what a terrible beast Microsoft is. He's not winning any converts that way. I work with Linux and Windows every day, and I like them both. Petreley needs to get out into the real world and realize that both operating systems have their proper place, both have vulnerabilities, and both can be vital to an organization. He also needs to do a little research. For example, researchers at Mi2g Ltd. say that in August, 67% of all successful and verifiable attacks against servers targeted Linux, compared with just 23.2% that targeted Windows – and August was the month during which Sobig.F and Blaster hit. Furthermore, 12,892 e-business sites running Linux were successfully breached that month, compared with just 4,626 running Windows. There is no perfect operating system. But please, for the sake of your readers, move on.

Doug Tinklenberg
System engineer, LeMars, Iowa

More Letters, page 28

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Letters, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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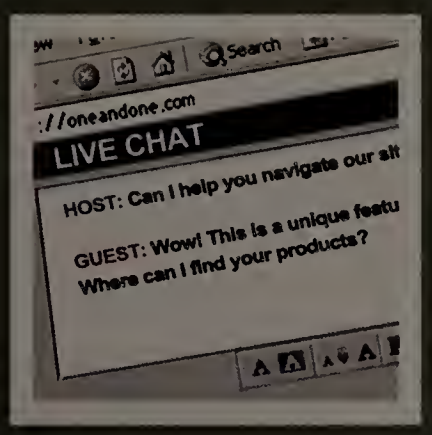

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WEB FREELY

Outsourcing Issue Raises Readers' Ire

WHAT CAN I SAY about your outrageous 14-page Offshore Buyer's Guide in the Sept. 15 issue of *Computerworld* [QuickLink a3600]? That it was yet another slap in the face of American IT workers goes without saying. What really bothers me is your presumption that all of your readers are employed CIOs who support offshore outsourcing.

Computerworld used to be a respected IT industry magazine, but it now clearly targets an elite and probably nonexistent CIO audience. You have betrayed your core IT audience. Like many other American IT workers, I recently lost my job to offshore outsourcing, so I do not appreciate such articles at all. There is a big difference between reporting on the offshore outsourcing trend and actively promoting and encouraging it.

Robert Kleefisch
Homewood, Ill.

IT'S BEEN DEPRESSING enough reading over the last year all the articles in your publication about companies displacing U.S. workers by using overseas outsourcing. Now you've made it even easier by publishing a buyer's guide; it's the last straw. I see no reason to read your magazine in the future.

Ed Hiney
Naugatuck, Conn.

I WONDER IF the CxOs who are outsourcing U.S. IT jobs offshore to save money see the very basic economic principle presented in your Offshore Buyer's Guide. The cost of doing business in politically stable countries with an abundance of skilled IT workers and a robust IT infrastructure is going to be higher. Quality isn't cheap.

Jon Banks
Powder Springs, Ga.

The Human Math

YES, IT'S TRUE: IT at every company has been arrogant, high-handed, inflexible and uncooperative on occasion [Frankly Speaking, "The Human Factor," QuickLink 41480]. But are HR, accounting, quality or engineering outsourced? Every support and service group is guilty of all those sins and more. Don't kid yourself; it is always about the money.

Darrel Anderson
Sussex, Wis., dda@wi.rr.com

I DISAGREE with this statement in Frank Hayes' column: "Even if outsourcing turns out to be a horribly wrong decision, it's still a no-lose situation for executives . . . who've had it with IT." How does a company benefit from a spiteful decision that may do more harm than good? If I were a shareholder, I'd be after the executives' heads.

D. Bale
Saginaw, Mich.

Foreign-born Citizens

THE ARTICLE "IT Unemployment Hits 'Unprecedented' Level" [QuickLink 41519] states that a study found that "foreign-born workers now account for a fifth of all IT employees in the U.S." Is "foreign-born" relevant? Shouldn't this be framed in terms of "non-U.S. citizens"? In my office are two foreign-born IT staffers. Both are citizens, and therefore have as much right to work here as a native-born citizen and don't need H-1B or L-1 visas.

Scott Hutchinson
Network administrator,
Concord, Calif.

MySQL Breaks Into The Data Center

MySQL is changing the nature of the database market with a powerful combination of low cost and high performance, though critics say it's not a mature technology. **Page 32**

FUTURE WATCH

Megabit Mobile

Mobile wireless data rates will make a quantum leap in the next five years, compared with little growth over the past decade. And Wi-Fi will be integrated into cellular service too, as mobile computing grows up. **Page 35**

SECURITY MANAGER'S JOURNAL

New Job Brings Back Old Problems

When Vince Tuesday takes a new job, he faces unexpected challenges — and revisits old ones. **Page 36**

GRIDS EXTEND REACH

Outlook: Grid computing technologies can work miracles in scientific and academic niches, but support for mainstream commercial applications is still evolving.

By Gary H. Anthes

PHILIP ANDERSON

WHEN NOVARTIS AG needed extra processing power, the pharmaceutical giant found it — 5 trillion floating-point operations per second of unused capacity, to be precise — in 2,700 desktop PCs at its headquarters in Basel, Switzerland. The company lashed the PCs together in a compute grid that it now uses to run number-crunching supercomputer applications that model the interactions between proteins and other chemicals that might be used in drugs.

"The grid has opened up a number of opportunities for us which were just not there before," says Manuel Peitsch, head of informatics and knowledge management at subsidiary Novartis Research. "People couldn't imagine doing the things that we are doing today on a routine basis."

The Novartis drug research software is loaded onto the desktops by way of a server running Grid MetaProcessor software from United Devices Inc. in Austin. By investing $400,000 in grid technology, Novartis avoided spending $2 million on a new Linux cluster.

The Novartis success story is far from unique. Drug companies, university computation centers, product development and engineering departments, federally funded research consortia and a few financial services firms have set up computer grids. They report big savings in hardware costs and sometimes productivity improvements as well.

Grids consist of geographically dispersed computers linked dynamically in order to present to users a unified view of computational resources such as compute cycles, disk space, software or data. There are intracompany grids, such as the one at Novartis, and partnership grids, such as the National Science Foundation-sponsored TeraGrid.

Utility grids, which proponents say could provide unlimited on-demand access to computer resources in much the same way the U.S. electric power grid provides on-demand access to electricity, are a dream of companies such as IBM and Hewlett-Packard Co. However, they don't yet exist.

Grid Limits

Today, most grid applications share three characteristics. First, they are computationally intensive. Second, most are written for parallel or massively parallel execution. Third, like the Novartis grid, most are built to harvest unused compute cycles. Some, however, focus on getting at distributed data or disk resources.

EMERGING TECHNOLOGIES

Although IT vendors tout grids for all kinds of applications, grids have barely begun to move beyond scientific, engineering and mathematical/statistical applications. One reason is that most business applications weren't written with parallel processing in mind, so they're less able to take advantage of the many semi-independent processors that form grids.

"Parallelizing these applications is a major rewrite," says Carl Greiner, an analyst at Meta Group Inc. in Stamford, Conn. "That's why grids are having a difficult time in the commercial space." It will be five years before applications such as supply chain systems become suitable for grid computing, he predicts.

Another impediment is that tools for

Breaking Down the Application

While traditional applications require a single processor to step through all tasks sequentially, compute grids speed processing by breaking the task into smaller jobs that can be processed in parallel. This makes grids ideal for applications such as simulations or drug testing. Some commercial business applications could also benefit, but most would need to be rewritten to take advantage of a grid architecture.

SOURCE: NOVARTIS AG

monitoring usage, charging for usage and even ensuring security in grids aren't well developed, Greiner says. The lack of such capabilities is especially troublesome when a grid spans multiple departments or companies, he adds. In a survey of 50 companies sponsored by Platform Computing Inc., a developer of grid software in Markham, Ontario, 89% of respondents cited organizational politics as a barrier to implementing grids. Objections included fear of losing control of IT resources — "server hugging" — and fear of a reduction in the IT budget.

Ahmar Abbas, managing director of Grid Technology Partners in South Hadley, Mass., sums up the obstacles to more widespread adoption of grids this way: "You have to really understand your applications — Can I distribute them?" But, Abbas says, vendors are helping users get applications grid-enabled. For example, IBM recently announced a new release of WebSphere Application Server that lets users bring a collection of servers into a grid to balance the workloads across several WebSphere applications. A future enhancement will also support non-WebSphere applications in the grid, IBM says.

Web services hold the key to grid computing for commercial applications, Abbas says. "The way business applications will take advantage of the grid is through XML, UDDI, SOAP and WSDL. The Open Grid Services Architecture [standard] takes all the capabilities that grid can offer and makes them appear in the same nomenclature as a Web services application," he says.

Considerable work on grid standards is now under way among vendors, users and researchers. But many applications don't yet conform to the standards, and even some grid product vendors say the standards aren't mature enough for commercial applications.

While commercial applications aren't yet ready, traditional grid applications continue to grow. Researchers at Purdue University in West Lafayette, Ind., have a hierarchy of distributed computing resources, with supercomputing at the top, six 48-node Intel/Linux clusters in the middle and a 2,300-PC grid running on United Devices software at the bottom. The goal, says David Moffett, associate vice president for research computing, is to move jobs down the hierarchy, where computing is cheaper.

"I have very high hopes that we can move the whole stream of jobs out of the cluster space down into the United Devices space," Moffett says. Although the PC grid requires a United Devices software license and two dedicated grid servers, "those are close to free cycles," he says.

Moffett plans to expand the grid to include PCs in faculty and administrative offices. And he says he'll make the compute cycles on research computers that have been freed up by the existing PC grid available to business applications. "We've cleared off enough resources high in that stack that they will run up there," he says. **41610**

THE GRID INNOVATORS

SOME PIONEERING USERS are expanding grid technologies beyond the application niches common today.

Novartis AG's Manuel Peitsch

Novartis uses grid technology to tap unused desktop compute power, but the $19 billion drug company is also looking for free storage on thousands of desktops, says Manuel Peitsch, head of informatics and knowledge management at Novartis Research. "People have 30GB or 40GB hard drives, but most of their data is out on the network," he says. But you have to answer some hard questions before building a data grid.

"How do you find the data when you need it? How does the performance compare to that of a storage-area network? What's the cost of doing distributed storage of that type vs. having almost diskless machines and having storage centralized?" Peitsch asks. He says he's also looking into the possibility of expanding the grid to areas outside of research, including CRM.

At **Purdue University**, the 2,300-PC grid just harvests compute cycles. But David Moffett, associate vice president for research computing, says Purdue will work with United Devices to develop software to go after disk space on the desktop as well.

But it's trickier to set up a grid for storage than it is to set up one for computing. "You have to have a network that can support all that traffic," Moffett says. And distributed storage requires addressing tough issues of security, data replication and machine availability and reliability, he adds.

Nevertheless, Moffett says he's committed to a growing exploitation of grids. "My staff gets annoyed with me for trying to steal cycles from anything with a CPU in it," he says. "If the Coke machine had an Ethernet jack, we'd be stealing cycles from it."

– Gary H. Anthes

GRID BUILDING BLOCKS

These standards guide grid system development:

QuickLink 41613
www.computerworld.com

MIDDLEWARE MAKES IT WORK

The major IT infrastructure vendors, including IBM, Hewlett-Packard Co. and Sun Microsystems Inc., all have broad initiatives and products for grid computing. But most grids depend on middleware from smaller grid specialty companies. Here are a few of those smaller vendors:

Avaki Corp.

Burlington, Mass.

■ Avaki's **Data Grid** goes after structured and unstructured data distributed across departments, locations and companies. Unlike a data warehouse, where information is copied from various sources into a central repository, Data Grid allows the data to stay in place and gives applications a data catalog with a unified and secure view of the grid.

DataSynapse Inc.

New York

■ DataSynapse's **GridServer** is targeted at data- and compute-intensive financial services, energy, and government applications running on Linux, Unix or Windows. It seeks to transform the middle-tier infrastructure, just as J2EE application servers have accelerated and standardized application integration.

Entropia Inc.

Carlsbad, Calif.

■ **DCGrid** manages, schedules, deploys and executes compute-intensive applications across grids of Windows-based PCs.

Platform Computing Inc.

Markham, Ontario

■ **Platform Symphony** is a development framework for grids running real-time data- and compute-intensive applications. Platform LSF and JobScheduler are for batch workload scheduling, monitoring and management across a grid. The company also offers a version of The Globus Alliance's Globus Toolkit.

United Devices Inc.

Austin

■ United Devices' **Grid MetaProcessor** products go after unused compute cycles on desktops, servers and clusters. It "virtualizes" access to computing resources, applications and data, providing a single interface from anywhere within the enterprise. It can emulate Linux binaries on Windows platforms so that users can run both Linux and Windows applications on them.

– Gary H. Anthes

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— Dave Smith
VP Technical Services
CompuComSystems, Inc.

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MySQL BREAKS INTO THE DATA CENTER

Once dismissed as inadequate for high transaction volumes, the open-source database's improved performance and low cost are winning new converts – and shaking up the status quo in the database world. **BY MARK HALL**

JONATHAN CARLSON

MYSQL INFURIATED a janitor one night in the New York headquarters of The Associated Press. Because of a successful adoption of the open-source database, the IT staffers there figured they no longer needed their DB2 manuals. So they dumped them all in the trash.

"He looked at the manuals, and there were stacks of them, got angry, said he'd come back for them later and stormed out," recalls Michael Welch, a database consultant on the project. "All because of MySQL."

MySQL is also upsetting the entire database market. Charles Garry, an analyst at Meta Group Inc. in Stamford, Conn., hails it as "a disruptive technology" that's commoditizing databases — so much so, he says, that "the future of the database market will be the standardization on MySQL."

Strong words, but adherents of the open-source database are passionate supporters, and they number in the millions. These users are drawn to it because it offers high performance, ease of use and a feature set broad enough to handle most of their database development needs. And it's cheap.

Indeed, MySQL's low cost never fails to come up in conversation with users. Mark Cotner, manager of network application development at Cox Communications Inc. in Atlanta, points out that his MySQL-based application cost less than $90,000 from soup to nuts, including the Intel-based servers, programming time and the approximately $4,000 annual license and support payments to MySQL AB, the Uppsala, Sweden-based company that oversees the development and distribution of the open-source database. An Oracle database license for the project would have totaled $300,000 by itself, he says.

Cotner is far from the only person with a MySQL money-saving story. Another is Dwight Clark, an IT specialist and systems analyst for the Marshall Space Flight Center Procurement Office at NASA. He says the NASA Acquisition Internet Service (NAIS) migrated an Oracle database to MySQL because a price restructuring by Oracle Corp. meant the licensing costs alone for a simple upgrade would be "more than twice the NAIS annual budget."

Fast and Easy

But free source code and inexpensive licensing aren't the only reasons why users sing MySQL's praises. Performance also rises to the top of the list.

Cotner says that the 700GB data warehouse he built "is very, very fast." The application atop the database gathers monitoring information via Simple Network Management Protocol on Cox's 1.2 million cable modems in the field. With it, Cox is now able to supply critical service data to analysts and technical support staff.

"The most expensive part of running a cable company is managing the last mile," he says. "So if we can do that more intelligently, we can save the company money and improve customer satisfaction."

Terry Ewing, senior systems manager at AP, says his company's MySQL application hosts 600 Web sites for affiliated newspapers across the U.S. Every day, hundreds of national and world news stories are filed and stored on a Sun Solaris 420 server, and

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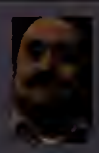
"... SNW is a great educational opportunity ... I have the ability to talk to peers ... I also have first-hand access to vendors ..."



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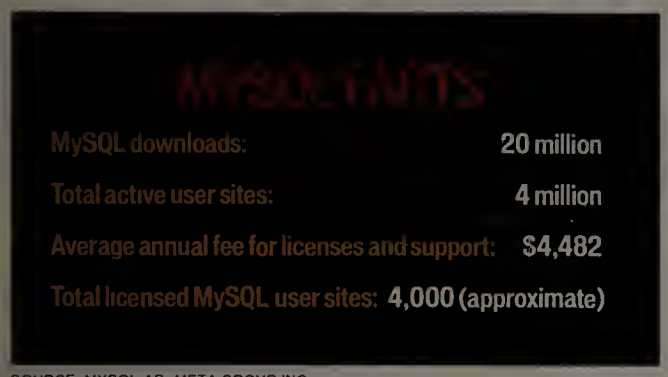

SOURCE: MYSQL AB, META GROUP INC.

newspapers host their own local stories elsewhere. The news pieces are updated regularly and linked in packages, such as one for Iraq, where a recent suicide bombing story was updated 17 times in one day.

In addition to the constant churn of data stored, the database includes all the multimedia files attached to each story. Readers of 600 online newspapers search through the database, find stories and their attendant multimedia files and swiftly pull them down to their PCs, Ewing says. "The performance is very good," he adds.

End users aren't the only ones who benefit from faster speed: Administrators have also noticed a difference.

For example, Ewing says it used to take two days to run a replication of AP's DB2 database. With MySQL, the process lasted a mere two hours.

NASA's Clark compared MySQL's performance against Oracle's for his application, and it averaged 28% faster during the battery of tests he hammered it with. He adds that unlike competing products, "MySQL was not a machine resources hog."

The leanness and speed of MySQL comes from its straightforward design. In MySQL, every database exists as a separate directory and contains three files: one for the structure or schema of the database, another for data and one for the index. That's it.

The database is also easy to administer. For example, users say data migration is a snap because administrators simply move their data directories into MySQL.

Clark says switching NASA's application from Oracle was a breeze. "To switch to MySQL, we only had to install the MySQL database driver module and change the connect call to the database interface module," he explains. "Once this was done, we literally had to change approximately one line of code out of 15,000 lines to begin using MySQL in our first application."

Cotner says, "I don't claim to be a database administrator, but I find it easy to administer from the command line."

Not Perfect

However, that command-line approach troubles Jay Nickson, a consultant at Ronin Software Group in New York. Although he likes and uses MySQL, Nickson thinks the vast majority of Windows professionals will bypass its cost-effective capabilities because MySQL isn't intuitive to them and lacks documentation useful to Windows administrators. He says 70% of MySQL's utilities aren't documented.

Ewing, however, doesn't see that as a problem because the open-source development community that's behind MySQL "is more vocal, more helpful and more diverse" than users of other databases.

Welch, who consults at AP through Bangstate Inc. in Brooklyn, N.Y., says finding answers to questions about MySQL was easy. "Just about every question we had was Googled," he says.

More important, Welch says, is that unlike the technical writers who crank out the manuals for DB2, Oracle and SQL Server "but don't use the system, we were getting answers from people who actually use it."

Still, Nickson says that MySQL AB's management and technical staff need to put more emphasis on documentation to break into the broader, more lucrative Windows market.

Another fault with MySQL, some say, is its youth.

Tom Rizzo, group product manager for SQL Server at Microsoft Corp., dismisses MySQL as "technically immature" and claims that "it's not very good in a high-transaction environment."

And Stamford, Conn.-based Gartner Inc. chided MySQL in a report, saying it lacked "high-end capabilities" such as support for storage procedures, a set of compiled SQL statements with one name that can be invoked by different programs for greater efficiency. Gartner contends that MySQL needs another five to 10 years to mature.

And even some happy users want more from MySQL. "Having stored procedure calls would be OK," says Cotner.

Marteen Mikos, president of MySQL, acknowledges that early releases of the database were weak in high-volume transactional applications. But he claims that the current Release 4.0 is competitive with other databases for transaction performance. And, Mikos says, stored procedure calls will be added when Release 5.0 arrives next year.

Users who have high-end, multiprocessor environments might also skip MySQL, because it's not the best choice for a database on an eight- or 16-processor Unix machine.

Database on the Cheap

MySQL AB's software costs $440 per server. The MySQL source code can be downloaded for free. Here's a look at the costs of competing products, which are priced per processor.

SOURCE: META GROUP INC., STAMFORD, CONN.

But Meta's Garry doesn't think that drawback will stop the database's momentum in the market. "More than 60% of all databases run on servers with four processors or less," he says.

Yet, despite MySQL's progress in the market, "we haven't found very much MySQL out there," says Microsoft's Rizzo.

"That's the best news I could have," retorts Mikos. "As long as Microsoft is in denial, we're fine."

41750

Vendors Make MySQL Deals

EXECUTIVES AT MYSQL AB might be running out of ink in their pens from all the agreements they've signed with major industry players for the open-source database.

This summer, the company signed a deal to ship MySQL 4.0 with Novell Inc.'s NetWare 6.5. Each version of NetWare comes with a full commercial license of the database, so users need not worry about the issues surrounding open-source General Public License agreements [QuickLink 31574].

In the spring, SAP AG selected MySQL to completely revise the database shipped with every copy of the SAP ERP application suite [QuickLink 38764]

According to Rudolf Munz, senior vice president for development platforms at SAP, the two companies will jointly develop an open-source database to replace SAP's existing one.

"We have a simple, strategic goal," he says. "Infrastructure, like databases, should be as inexpensive as possible so users have the budget to buy as many SAP applications as possible. Infrastructure has no value for customers. Only applications do." The new database will be called maxDB and be available in the next two to three years.

Also, MySQL and Redmond, Wash.-based start-up Pogo Linux Inc. agreed to work together to develop the first MySQL database appliance. And Sun Microsystems Inc. ships MySQL as standard with its Sun ONE Active Server Pages product and as the only database option for its Sun Fire servers.

According to MySQL President Marteen Mikos, who moved to California this year to handle the increased business in the U.S. and to be closer to investors who poured nearly $20 million into the company this summer, "2003 has been a good year. Next year, I hope, will be better."

– Mark Hall

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Megabit Mobile

Coming at last. Plus, integrated Wi-Fi.

By Bob Brewin

THE DEVELOPMENT of wireless data services over the next five years will seem revolutionary compared with the snail's pace that marked the technology's early history.

Cellular service remained primarily a voice-only medium until 1992, when cellular carriers developed a TCP/IP system with a maximum data rate of 19.2Kbit/sec. Rates remained at that level until last year, when carriers introduced 2.5G (two-and-a-half-generation) technology that approximated dial-up modem speeds of 56Kbit/sec.

Early last year, companies that operate on the Code Division Multiple Access protocol upgraded their networks to offer users average throughput of 50K to 70Kbit/sec. At the same time, cellular companies that operate on the Global System for Mobile Communications standard beefed up their systems to provide average data rates of 20K to 40Kbit/sec.

Thanks to massive investments to get these modest improvements — AT&T Wireless Services Inc. alone will spend $14 billion on cellular from 2000 through the end of this year — wireless networks are now poised to move toward 2Mbit/sec.

FUTURE WATCH

Shiv Bakhshi, an analyst at IDC in Framingham, Mass., predicts that by 2006 or 2007, all mobile carriers in the U.S. will offer "near ubiquitous" service at peak data rates of 2Mbit/sec.

Margaret Marino, vice president of technology development at AT&T Wireless, says AT&T plans to offer 384Kbit/sec. speeds throughout its network by the end of this year and 2Mbit/sec. maximum speeds in four markets by the end of next year.

Verizon Wireless and Sprint PCS Group plan to offer data rates that peak at 2.4Mbit/sec., with average throughput between 400Kbit/sec. and 1Mbit/sec.

Tero Ojanpera, head of research at Nokia Corp. in Espoo, Finland, says wide bandwidth could in five years realize a dream the industry has chased since the 1939 New York World's Fair: a video phone the same size as today's mobile phones.

Len Barlik, vice president of technology research at Sprint Corp., says broadband mobile networks and advanced handsets would provide users with all the processing power and capabilities of a desktop terminal connected to an office LAN. That would allow enterprise users to move beyond e-mail and download fat attachments such as PowerPoint slides or Adobe Acrobat files directly to their handsets.

The carriers also say they'll incorporate Wi-Fi wireless LAN technology into their networks and access devices in order to accommodate interfaces with both enterprise Wi-Fi networks and public-access Wi-Fi hot spots.

Originally envisioned as a wireless extension of the office LAN, Wi-Fi caught the attention of wireless carriers in 2000, when companies such as Wayport Inc. in Austin started to install short-range (100-ft.) but high-bandwidth Wi-Fi hot spots in airports and hotels.

Datamonitor PLC, a research firm in London, predicts that the number of Wi-Fi hot spots will explode from 31,000 at the end of this year to 135,000 by the end of 2006. Wi-Fi hot spots are expected to continue to penetrate the lodging and dining markets and extend into other venues, such as service in trains, planes, ferries and gas stations.

The Wi-Fi Connection

Ron Adkins, general manager of IBM's pervasive and wireless computing division, foresees the development of a Wi-Fi-enabled car that will use both Wi-Fi and cellular technologies to monitor onboard systems and to download data and music files from a home network. Wi-Fi under the hood will save on expensive copper wiring.

Chris Kozup, an analyst at Meta Group Inc., says that over the long haul, cellular carriers will dominate over Wi-Fi-only network operators as the carriers integrate Wi-Fi into their networks. This means a company could tap one carrier for all its wireless services, with charges for hot-spot and mobile connections all on one bill.

Kozup predicts that multimode phones will eventually serve as the entry point into enterprise voice networks through a voice-over-IP connection on corporate wireless LANs.

Mark Whitton, vice president for business and technology strategy at Nortel Networks Ltd., says the convergence of Wi-Fi and mobile networks requires the development of smart phones and handheld computers that can "sense" networks and their characteristics and then make a network choice based on user preferences such as bandwidth, cost and the availability of Wi-Fi or mobile service.

"The average Joe does not know or care what kind of wireless network he is using," Whitton says. The user needs software and devices — which Nortel is working on — that can make intelligent choices for the user, he says.

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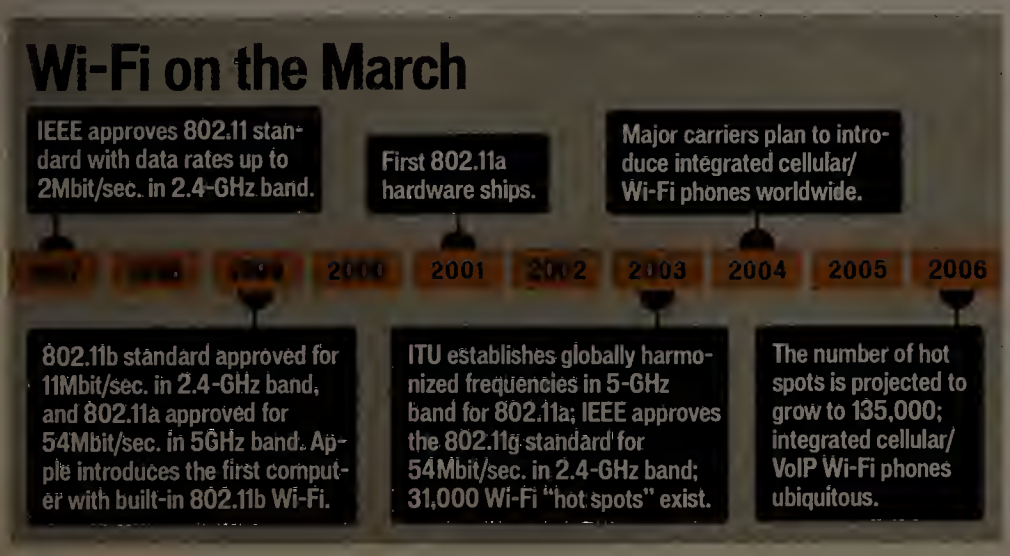
MORE ONLINE

For a timeline of wireless communications, visit

QuickLink 41754
www.computerworld.com

Wi-Fi on the March



Middleware.
It's at the mall.

New Job Brings Back Old Problems

Without the right tools, a smart, dedicated security team is left running in circles.

By Vince Tuesday

SECURITY MANAGER'S JOURNAL

AT 10 A.M., the boss called the entire IT security team into a meeting room, but without the line manager. He said that the line manager had been sacked.

There had been no warning, just an empty desk when the team came in that morning. The situation got worse when the boss informed everyone that a new line manager had been selected and would be starting tomorrow. A manager they hadn't even met and hadn't been involved in hiring? This didn't look good.

That scenario wasn't presented to me, however. *I* am the new line manager. I've changed jobs and been dropped into a shocked and surprised security group. I'm now at a much larger global finance organization. It's a step up for me, so I am very happy, but I worried a little at first about how the team would react.

It was a shame to say goodbye to my old place, but I'd been there for many years and was starting to get stuck in a rut. So I've jumped for a new challenge.

Far From Perfect

I spent my first week getting to know everyone in the department, which has had six managers in the past few years. I don't know why there has been such high turnover, but poor morale and a lack of strategy might explain it.

I'd heard that things were far from perfect before I arrived, but I'm confident that I can make a difference.

I wonder if my predecessors said the same thing?

My getting-acquainted period ended abruptly on Day 2, when we had a virus outbreak. A virus that spread between computers on our network had affected some development systems. It was shocking to see the limited tools that my new staff had at their disposal. Nonetheless, they knew what they were doing and dealt with the incident effectively using what they had.

To find infected machines, they had to scan computers for the changes that the virus made and then disconnect those systems from the network. They had no way of detecting the virus' attempts to spread, so by the time they found each infected machine — a 30-minute process — the virus had often infected others.

Their efforts kept the virus from exploding onto hundreds of systems, but they could have cleaned it up faster if tools were available to detect and report infection attempts. I'll be working hard to get the staff those tools.

> **In our first videoconference team meetings . . . I asked some very simple questions. . . . I'd expected the staff to . . . tell me their strategy, but none exists.**

The Agenda

My most important task will be to lift the staff's sights from the next urgent interruption to a longer-term view so they can build an approach that defends against future threats.

That means I must free up their time by clearing away tasks the staff now does every day that add no value. For example, every time a staff member requests access to a blocked Web site, we must approve it. The requests are always urgent and interrupt whatever we're doing, but most are for the same kind of things. I'm trying to set up a process where those requests are routed to the IT support group and we just review the decisions once a month.

The biggest change for me is that I now manage a global security team. I have people in Europe, the U.S. and the Asia-Pacific region. I'll be racking up frequent flier miles and learning about cultural differences. And we'll fly everyone in for an annual meeting, where we hope to resolve the security team's most enticing debate: where in the world one can find the best curry.

It is shocking how global security teams can operate unstructured in huge companies. In our first videoconference team meetings (held very early to accommodate every time zone), I asked some very simple questions. What do we do? Why do we do it? What should we do next? What is the difference between us and the auditing department? I'd expected the staff to point me at a strategy document or at least to tell me their strategy, but none exists.

They also have no technical architecture target and no documentation of what they do now. If you don't know where you are now and you don't know where you want to be, the only way you end up making the right decisions is if you're very lucky. It also is very hard to convince regulators, auditors or senior management that you are doing the right things, or to explain why the next tool or service is required if it doesn't fit into an overall plan.

I suppose I should be grateful that I can deliver a few quick wins by putting these plans in place, but it's a little disturbing that we appear to be running without them. I'm carefully not asking too much about my predecessor's work, since I don't want to linger on the past. But I do wonder why a plan hadn't been thought out and documented.

I was also thrown off by the company culture. Everyone works hard, but they also know how to let their hair down. The boss took us out to a welcome lunch and had to rush back to the office before the bill arrived. He happily just gave me his credit card and told me to sign on his behalf when the bill came. I was a little nervous that I might be committing credit card fraud, but I certainly didn't want to question my boss. Fortunately, the restaurant gladly accepted my signature.

So far, I seem to be winning the respect of the team. I've been here three weeks and other groups have already remarked on the improvement in the group's morale. I must be doing some things right — or at least doing them wrong in a different way from the last fellow.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum. **QuickLink a1590**

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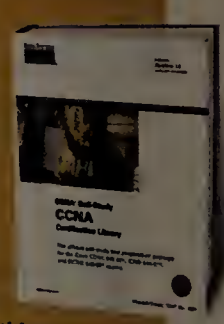
SECURITY LOG

Security Bookshelf

***CCNA Certification Library (CCNA Self-Study, exam #640-801)*, by Wendell Odom; Cisco Press, 2003.**



All information security is built on a foundation of a secure network, so anyone who hopes to do well in a security career had better understand networking. This is a comprehensive beginner's guide that covers everything you need to know to pass your Cisco Certified Network Associate exam. It also includes a cut-down version of Boson Software Inc.'s NetSim practice test software on CD-ROM. Netsim lets you practice the network skills you learn from the books on a virtual network on your PC.

The books are clear, and they cover every key concept in depth. Although focused on Cisco Systems Inc. products, the skills learned are universal to networking – and critical for anyone serious about security.

There are many books on the market to prepare you for exams. Some are so focused on helping you cram for the exam that they aren't useful for anything else. I haven't taken my CCNA exam yet, so we'll have to see how useful this book is in that regard. As a reference, it's top notch.

– Vince Tuesday

NCipher Introduces Security Module

NCipher PLC, a Cambridge, England-based vendor of cryptographic security management products, has announced a network-attached hardware security module that supports encryption, decryption and signing functions. The product has been independently verified to conform with the Federal Information Process Standards, according to a company spokesman. Pricing starts at $30,000.

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NICHOLAS PETRELEY

Sun Microsystems On the Couch

SUN MICROSYSTEMS enters the office of noted therapist Dr. Sickmund Fraud and lies down on the couch. "Doc, I think I'm having an identity crisis," Sun confides.

Dr. Fraud: Well, they say recognizing the problem is the first step toward addressing the problem. So how long have you had this problem?

Sun: What problem?

Dr. Fraud: Ah, I see. I think it might be helpful to try hypnosis. Watch the watch as it swings. You are getting sleepy. Your eyelids are getting heavy. You are entering a deep sleep. You are in a deep, deep . . .

Sun: . . . slump.

Dr. Fraud: Good, now tell me about yourself.

Sun: I am a hardware company; I own a mansion and a yacht.

Dr. Fraud: And how did you get this mansion und yacht?

Sun: I sold Sparc servers during the dot-com boom. They run Solaris, the best operating system for business.

Dr. Fraud: I see. And why is this Solaris the ideal operating system for the business?

Sun: I didn't say that. Linux is the ideal platform for businesses looking for cost-effective and powerful edge-networking solutions, like my Web site says.

Dr. Fraud: So this Solaris is the legacy, and you are building your future on this Linux?

Sun: Are you kidding? Linux is nothing more than a hobbyist operating system, built like a jalopy. Solaris is the future.

Dr. Fraud: So this Solaris is the best, just not powerful?

Sun: No, Solaris on my Sparc-based systems is far more powerful than Linux.

Dr. Fraud: So what you are saying is that Linux is more cost-effective on x86.

Sun: No, Solaris is essentially free on x86.

Dr. Fraud: I think I understand. Solaris is ideal on Sparc, and Linux is ideal on x86.

Sun: No, Solaris is ideal on x86, too.

Dr. Fraud: Then this Linux is no good at all?

Sun: Of course it's good. Linux is the ideal platform for businesses looking for cost-effective and powerful edge-networking solutions, like my Web site says.

Dr. Fraud: But you said before . . . *ach*, never mind. And why is a hardware company so obsessed about the operating systems?

Sun: I'm not a hardware company, I'm a software company focused on Java.

Dr. Fraud: Ah, now we are getting somewhere. I am speaking now with the software company, no? And do you also own a mansion und a yacht?

Sun: No. I have a condo in east Newark and rent a rowboat now and then.

Dr. Fraud: And being the software company, you focus on the java because programmers drink java to work the long hours. . . .

Sun: No, Java is a product I sell. It used to be Oak.

Dr. Fraud: So now you are a furniture company which used oak. And what is it you use now? Pine?

Sun: No, but some of us use Balsa, since Pine is outdated as an e-mail program. Regardless, I'm talking about Java as in my latest project, the Sun Java Desktop.

Dr. Fraud: I see. So this balsa-wood desktop furniture is what you sell now that the dot-com boom is over?

Sun: No, the Sun Java Desktop is software. Java is a programming language and platform-neutral runtime.

Dr. Fraud: Ah, I see. So you make money because this Sun Java Desktop software runs on the Sparc hardware, no?

Sun: No. It runs on x86.

Dr. Fraud: And you are using this superior Solaris on x86?

Sun: No, the desktop runs Linux.

Dr. Fraud: *Ach*, I see, but the desktop is written in Java.

Sun: No, it runs GNOME on Linux.

Dr. Fraud: And why is it called the Java Desktop?

Sun: Well, it does include the Java runtime.

Dr. Fraud: *Ach*, I see. Well, the clock on the wall says that our time is up. (Snaps his fingers.) Wake up!

Sun: So what's the verdict, doc? Do I have a serious identity crisis?

Dr. Fraud: No, I'm afraid you lack the one characteristic of those people with a crisis of identity.

Sun: An identity?

Dr. Fraud: Very good. And to which personality should I send the bill? **41853**

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It's under the hood.

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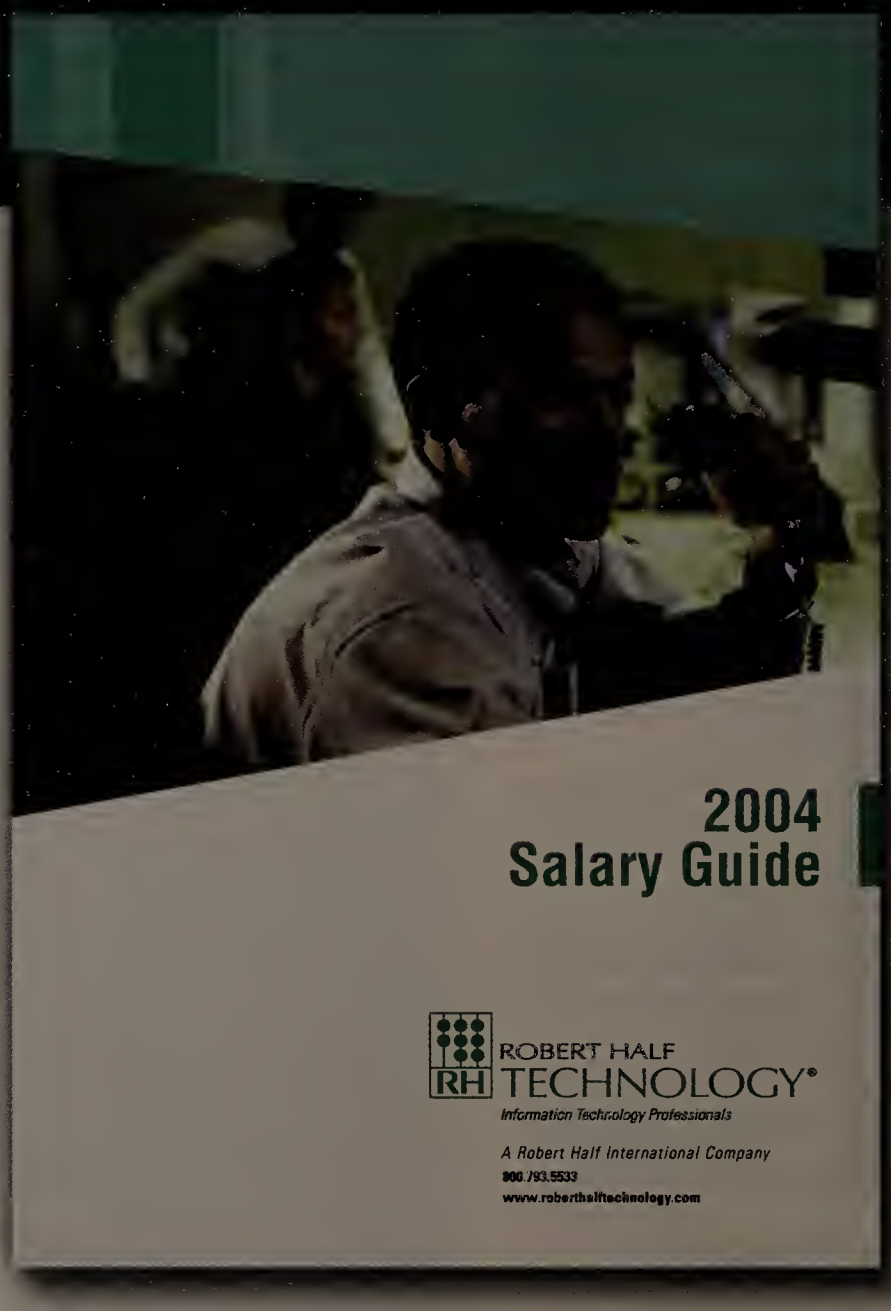

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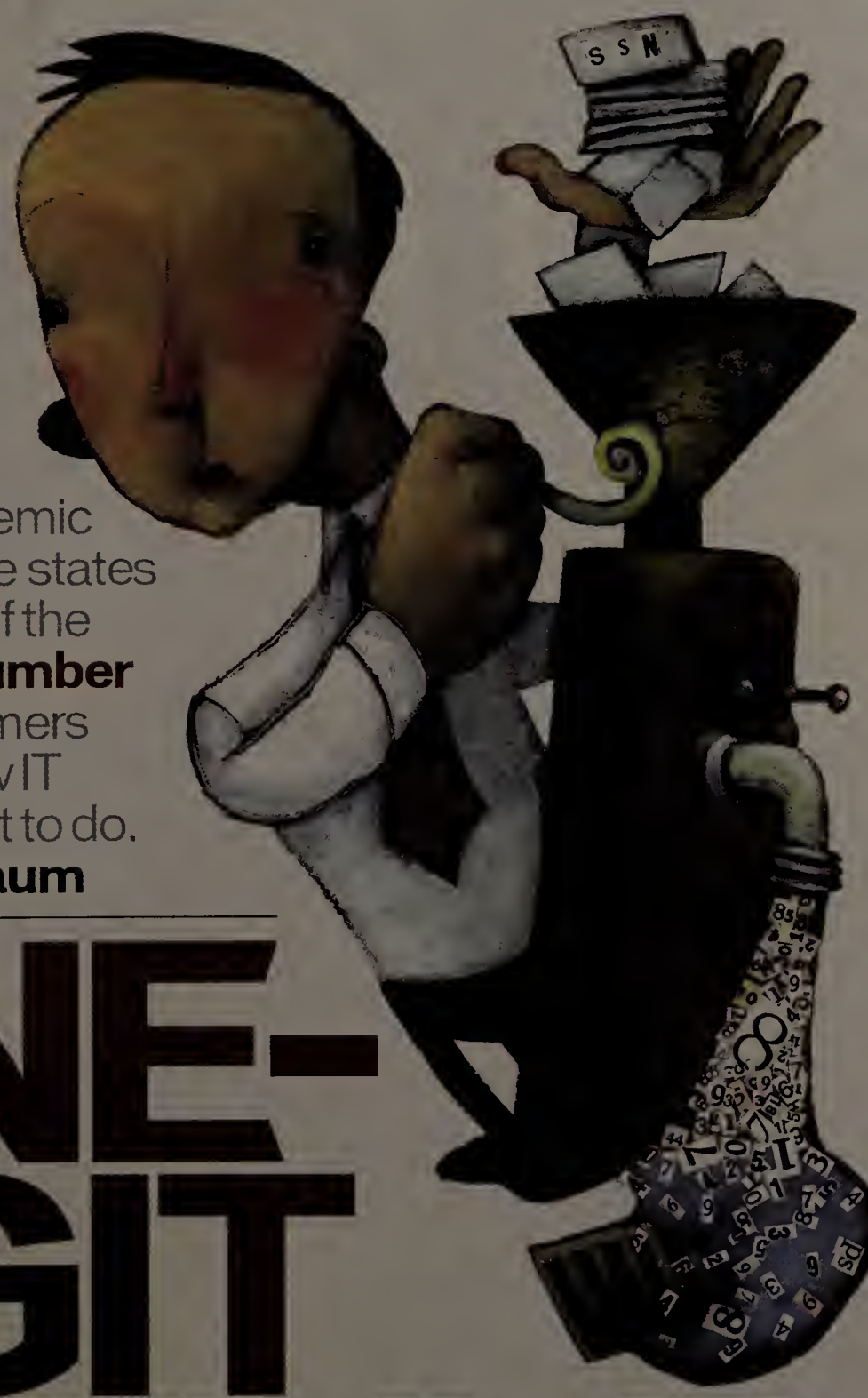
Selling Security to the CFO
An ex-CIO tells how to build a credible business case for spending money on IT security, including ROI calculations that even the CFO will love. **Page 46**

Offshore: The Third Time's the Charm
Columnist Bart Perkins says the conditions are right for the current wave of offshore IT outsourcing to be more successful than the first two were. **Page 48**



STEPHANE DENIS

Reacting to the epidemic of identity theft, some states are curbing the use of the **Social Security number** for identifying customers and employees. Now IT has to figure out what to do.

By Peter A. Buxbaum

NINE-DIGIT DILEMMA

OPEN an online bank account, and you'll need to plug in your Social Security number for identification. Get your insurance information online? Same thing. The nine-digit SSN is the key that unlocks many doors — which is convenient for the consumer but also a tremendous privacy threat in a world where identity theft is the No. 1 form of consumer fraud.

Hackers or identity thieves who get a person's SSN can gain access to a huge amount of confidential data because the SSN has been used in so many industries as a customer account or employee number.

Identity theft has been rampant, victimizing 3.4% of American adults between July 2002 and June 2003, according to Gartner Inc. in Stamford, Conn. Concerns about identity theft have led to state legislation to restrict the use of the SSN on ID cards or, in the case of California Senate Bill 1386, to prod businesses into beefing up security by making them liable for disclosures of private information.

But Jim Hurley, an analyst at Boston-based Aberdeen Group Inc., says better security still won't solve the problem.

"No amount of electronic security is going to reduce the risk of having these SSNs — and their owners' identity data — stolen, fleeced, bartered and otherwise lost to the Internet winds," he wrote in a recent report. "When the breaches become public knowledge — and they will — publicity flames will be stoked high by the newly enacted California statute, Senate Bill 1386, and the litigation-for-pay industry."

Hurley says there's only one alternative: "Eliminate [the] use of Social Security numbers as digital identity credentials, before the house goes up in flames."

But it's not that simple. After all, banks must still collect their customers' SSNs in order to comply with Internal Revenue Service reporting regulations. Insurers also must sometimes store

Continued on page 44

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Continued from page 41

SSNs or other identifiers, such as driver's license numbers, for tax or underwriting purposes. And employers need to keep the SSNs of their workers for tax purposes, even if they're not used as official employee identifiers.

"You have to divide the problem into two parts: those companies that must, because of U.S. regulatory requirements, include SSNs in their data, and those that do not," says Doug Lewis, who recently retired as CIO at InterContinental Hotels Group PLC.

The hotel conglomerate's Holiday Inn chain once used SSNs as the prime identifier for its Priority Club members, Lewis says. "Then they recognized the privacy issues and reissued the Priority Club cards without SSNs," he says. "The conversion consisted of morphing the SSN to another number using a mathematical algorithm."

Other organizations are also dumping SSNs. For example, the Georgia Institute of Technology, Northwestern University, Ohio State University and the University of Illinois have all announced moves away from using SSNs on student ID cards. A handful of states, including Arizona, New York, Rhode Island and Wisconsin, have enacted laws to regulate colleges' and universities' use of SSNs.

Here to Stay

Some companies eliminated the use of SSNs as employee identifiers long ago. "When we went global, we had to issue everyone new numbers because foreign employees don't have Social Security numbers," says Suzanne Gordon, CIO at SAS Institute Inc. in Cary, N.C. "We haven't used SSNs around here for system access for 18 years."

But for banks and other financial institutions, SSNs will continue to be found in databases, whether or not they're used as account numbers, so the security problem remains. "I'm more concerned about the risk of someone hacking into a database, because these institutions need to maintain the Social Security numbers of their customers," says Barry Thompson, a banking security consultant in Syracuse, N.Y.

> **"Armed with one's SSN, an unscrupulous individual could obtain a person's welfare benefits or Social Security benefits, order new checks at a new address on that person's checking account, obtain credit cards, or even obtain the person's paycheck. . . . Succinctly stated, the harm that can be inflicted from the disclosure of a SSN to an unscrupulous individual is alarming and potentially financially ruinous.**
>
> **GREIDINGER V. DAVIS,** 1993, U.S. COURT OF APPEALS, FOURTH CIRCUIT

The health care industry, including insurers, faces an even more profound dilemma. "The entire health system, from providers to hospitals to insurers, tracks people by their Social Security numbers," says Kirk M. Herath, associate general counsel and chief privacy officer at Nationwide Insurance Cos. in Columbus, Ohio. "It might be more secure if everyone generated a random number, but then we would have difficulty talking to each other."

The insurer's conundrum is compounded by California's SB 1386. Among other things, the law requires companies to notify consumers if they have reason to believe that nonpublic information has been compromised. It also prohibits the use of SSNs on mailings, whether electronic or postal, a provision that directly hits insurance companies that use SSNs as customer IDs. SB 1386 covers any company with customers or employees in California.

"When we came to grapple with SB 1386, it forced us to look at the issue holistically," says Herath. "We decided it made no sense to protect the Social Security numbers of California residents only, because they were intermingled with other customers in our databases. We decided compliance was to be national in scope."

Nationwide allowed each of its business units to tackle the problem as it saw fit. "Each system is a different animal," Herath explains. "Some removed, redacted or scrambled the Social Security number with an algorithm. Others generated numbers randomly."

Tougher Than Y2k

But a more stringent approach to SSNs is being taken by Blue Cross and Blue Shield of Minnesota. "We are eradicating them," says John Ounjian, CIO at the Egan, Minn.-based health insurance association. "We are not merely doing it with our current membership but also with our historical databases."

This task has proved to be a good deal more complex than the Y2k conversion of a few years ago. "Y2k involved a field expansion. But membership numbers are built into the database design," Ounjian explains.

One option is to encrypt the SSN, but he says he rejects that idea because "if for some reason the key is stolen or compromised, all of those ID numbers can be retraced to the SSN, and we'll never even know it is happening."

Ounjian likewise rebuffs the use of pseudonymization, a process developed by London-based Sapior Ltd. that attempts to overcome some of the difficulties associated with encryption.

"Encryption and password protection provide all-or-nothing access," says Steve Crutchley, chief security officer at 4FrontSecurity Inc., an information security consultancy in Reston, Va., that has partnered with Sapior.

"Pseudonymization replaces identifiers with a computer-generated pseudonym on a one-to-one basis," Crutchley explains. "The true identities are retained on a secure computer system and available for reidentification as needed by those with access permission."

That's not good enough for Ounjian, who says that, "as long as you are using a defined algorithm, there is always a master key. Like the master key to an office building, you are only as secure as the key."

For Nationwide's Herath, encrypting the SSN would be the ideal solution because it would maintain the connection among records throughout the health care process. But he laments that "there are not a lot of affordable and flexible encryption solutions out there. We may end up with a swipe card that has the number embedded in its strip. The problem there is that the family practitioner on Main Street doesn't necessarily have the technology [to read it]."

Meanwhile, Ounjian is spending $6 million to make the conversion at Blue Cross and Blue Shield of Minnesota. "From what I hear, it takes between $4 million and $7 million to do this job," he says. Besides converting the databases, the association is also modifying applications to accommodate the new member numbers and absorbing the costs of printing new ID cards for all of its members.

For all of the effort and expense it takes to rid a company of the SSN scourge, Herath is concerned about the downside of this trend. "Abandoning Social Security numbers means that it will be tougher to identify people," he says. "It's more likely that there will be mistakes in treatment and services."

41704

Buxbaum is a freelance writer in Potomac, Md. He can be contacted at pab001@aol.com.

State Action

Several states have considered restrictions on the use of Social Security numbers. Here's a sampling of recent legislative activity:

Arizona: The governor signed a bill modeled on California's SB 1386.

Georgia: Legislation was enacted that prohibits insurers from using SSNs on identification cards.

Maryland: A measure to restrict use of SSNs was referred for study.

Michigan: Legislation to prohibit insurers from displaying SSNs is expected to become law.

Minnesota: Legislation has been introduced that would restrict the use and display of SSNs.

Missouri: The governor signed a bill that prohibits public display of SSNs.

New Hampshire: A bill that would have prohibited insurers from printing SSNs on ID cards was killed in committee.

Tennessee: A bill to protect the privacy of SSNs was defeated.

Texas: The governor vetoed a bill that would have prohibited the use of SSNs on ID cards and mailed materials.

Utah: The governor signed legislation prohibiting the use of SSNs on insurance ID cards.

Vermont: A bill prohibiting use of SSNs without prior written consent died in committee.

West Virginia: A bill that would have prohibited the recording of SSNs in public records was defeated.

SOURCE: HEALTH INSURANCE ASSOCIATION OF AMERICA'S "STATE ISSUE TRACKING REPORT," WASHINGTON, JULY 2003; OTHER PUBLISHED REPORTS

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SELLING SECURITY TO THE CFO

How to make a credible case for spending money on IT security.

By Doug Lewis

ROBERT NEUBECKER

ROI

"SHUT IT DOWN, NOW!" The guy issuing this command was my chief information security officer (CISO). The "it" he ordered shut down was our entire Internet infrastructure. That infrastructure was generating more than $2 million of high-profit revenue every day. After a sleepless night he had finally figured out why we were suffering a prolonged denial-of-service attack. Our firewalls should have been flawlessly deflecting this attack, but they weren't. The "bad guys" were on us like flies on a dead dog.

His sudden realization was that the firewalls had been reloaded without any of the most critical defensive rules.

The cause of this attack turned out to be human error, but the event triggered a complete review of our Internet security, followed by a decision to beef up our defenses and outsource much of our security administration and monitoring.

Back in the good old days, security consisted of a few firewalls and some virus protection. The threats have outgrown those simple defenses, and the cost has outgrown the approval level of the CISO and, sometimes, that of the CIO. Fortune 500 companies are finding themselves with security expenditures that require CEO and even board-level approvals. Each one of these companies comes with a beady-eyed chief financial officer demanding a rock-solid business case with a credible return on investment.

So you've got three problems. You've got to determine the appropriate level of security for your company. You've got to build a business case that nontechnical senior executives will understand and support. You've got to show that there's a financial return coming out of the investment. And all this is for a system where, if it's performing perfectly, nothing happens, right?

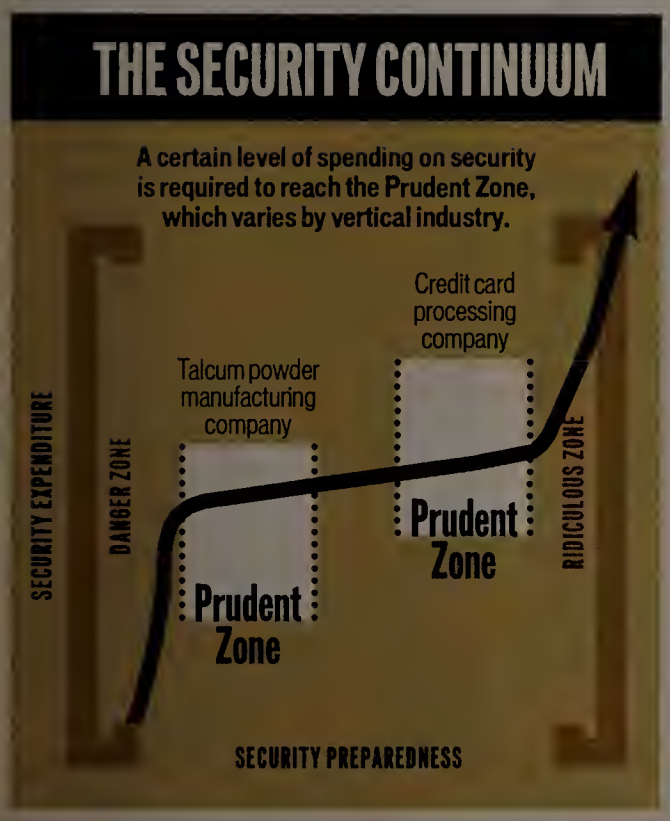
Take a deep breath. It can be done, and with credibility that even the toughest CFO will buy into.

STEP 1

Determine the current and appropriate levels of security. Get a security assessment done by a company with a solid reputation. Be sure to include vulnerability assessments and penetration tests against your key systems. (Key systems are those that move money, customer data, employee data or products.) Don't do this yourself. You probably don't have the expertise, but even if you did, you wouldn't have the credibility you need to sell the business case.

Done right, you'll emerge from the assessment with a very good idea of the state of your IT security vs. where you should be and what you'll need to do to get there. Don't be defensive. Share the results with your CEO and business-unit chiefs. They'll become your allies in the fight to get the business case approved. Make it easy for them to understand the problem and the cure.

The assessment will tell you where your defenses are weak and drill deeply into each area of exposure. You should know for each application what the potential security breach would be, the total economic impact of such a breach and the likelihood of the breach happening. The best source for this type of data is the annual report jointly released by the Computer Security Institute and the FBI. It has



credibility that your CFO will respect.

The last part of the assessment is to project your security costs over the next five years based on the use of your current technology and processes.

STEP 2

Build a security plan to fix the holes identified by the assessment. Cover all the bases. Perimeter firewalls, virus protection, intrusion detection, internal network segmentation, applications, deployment, hiring, outsourcing, training, monitoring and operations all need to be included. Make it a five-year total cost of ownership (TCO) model. Whatever you do, don't underestimate the difficulty and cost of putting these pieces in place. There are countless stories of good people getting fired because they had intrusion-detection devices sitting in the warehouse six months after paying for them. They simply didn't have the staff to install the devices.

The TCO is going to be much bigger than you expect. Security is expensive. However, if you don't include all the elements and don't make the five-year TCO calculations, the CFO will just make you do it over, and you'll lose points. If you sneak a low-ball number through the approval process, you'd better start polishing your résumé.

STEP 3

Build an ROI-based business case for security investments. It can be done, and here's how: The secret is to explain to senior executives what you're trying to do in terms they can understand. They survive by making smart resource (money) allocation decisions. Give them an understandable set of facts, and they'll spit out the right answer.

Start at 50,000 feet. Mental pictures and diagrams work well with senior execs. I use a security S-curve diagram (see above) and a castle-and-moat analogy.

Explain that you're building a moat around a castle. Until you get the moat completely around the castle, you've spent a lot of money with no improvement in security. That analogy represents the far left side of the S-curve. Until you've established a minimum level of protection, you're spending a lot of money but are still totally vulnerable.

Once you've got the moat encircling the castle, you can decide how wide and how deep it needs to be. This is the middle of the diagram, which I call the Prudent Zone. It varies by vertical industry. Talcum powder manufacturers need less security than credit card processors. Building the moat a mile wide and only yards deep is a waste of good money. This represents the far right side of the S-curve. You're spending a lot of money and not significantly improving your security. CFOs fire CIOs who waste money these days; that looks really bad on the résumé.

Next, drop down to 20,000 feet. Say what you want to do with the money and why. I use a risk/solution matrix. It takes data from the assessment and lists the risk areas, the economic impact of a security breach in each risk area, the likelihood of a breach happening and the resulting cost to the business of each breach. I match up the elements of my security plan against the risks and check every box where the plan addresses a risk.

I like to list all the actions required to complete the moat first. Then I list the actions that would bring the company to its Prudent Zone. Next, I list the things that would take the company a bit past the Prudent Zone — but not too far past.

Now that you've anchored each proposed action and its cost to a financial risk model, you need to tie an ROI to each action. You have four fundamental ROI opportunities for each action: reduce current costs, reduce future costs, reduce the financial risk to the business or increase revenue (see below). CFOs get giddy over this stuff!

Investment in information security can provide an ROI by reducing your annual loss expectancy (ALE) from a security breach. ALE is a calculation of the actual cost of a security breach multiplied by the probability that such a breach might occur in the coming year. It's much like the actuarial calculations insurance companies use to compute your premiums.

For example, let's assume you have a Web site that does $2 million of business per day. The security assessment shows the site is vulnerable to a denial-of-service attack, which would result in a three-day outage, and there's a 60% likelihood of a successful attack occurring. The ALE is $2 million per day X three days X 60% = $3.6 million.

The security improvement costs $500,000 and will reduce the likelihood to 15% and the outage to one day. The *improved* ALE is $2 million per day X one day X 15% = $300,000. This yields a first-year return of $3.3 million ($3.6 million minus $300,000) from a $500,000 investment.

Now you've got all the raw ingredients for a successful business case. The next step is to let your IT finance person produce your company's standard ROI financial tables and then wrap the assessment summary, the security plan with its five-year TCO, the risk/solution matrix and the ROI calculations into the standard company format. Remember, you want the business case for security to look exactly like the business case for any other company investment.

Build a short PowerPoint presentation describing the highlights of your story. Stay high-level. If you get into the speeds and feeds, your audience's eyes will glaze over, and you'll lose credibility as a business person. Shop the PowerPoint pitch to each senior executive individually *before* your business case goes to the executive committee. Don't skip the CFO. Listen well and incorporate what you hear into the document. Now you're ready to take the business case to the executive committee.

Follow this formula, and your next problem will be figuring out how to spend the money. **41708**

Lewis, former CIO at InterContinental Hotels Group PLC, is head of The Edge Consulting Group LLC in Atlanta. He can be contacted at edgeconsulting@bellsouth.net.

SECURITY ROI DEBATE

For dueling views on security ROI, see the following online columns:

QuickLink 39728
QuickLink 40180
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Opportunities for Security ROI

- **Better password administration** can reduce the password problems that eat up a lot of IT staff hours and hurt user productivity.
- **Improving patch management** is a huge opportunity for increasing the productivity of your IT security staff.
- **New technologies** can roll firewalls and intrusion-detection systems into one package, with a corresponding reduction in maintenance costs.
- **Consider outsourcing the monitoring of your security systems.** Those intrusion-detection systems generate tons of information and need round-the-clock monitoring. You may want to hand off this job to someone who does it for a living.
- **Proper security** allows companies to safely Web-enable employee services such as human resources and travel reporting tasks, which will then yield administrative savings.
- **The right level of security** permits wireless networking, thus saving money on inflexible, wired campus networks.
- **Better security** may reduce the company's insurance premiums.
- **You can even make the case that incremental revenue gains** can be realized by implementing new projects that you would otherwise have put off because of data security concerns, such as Internet-enabling portions of your supply chain.

– Doug Lewis

BRIEFS

Survey Hints at Spending Uptick

CIOs expect to increase their IT budgets next year by 3%, according to Merrill Lynch & Co.'s TechStrat Survey of 75 U.S. and 25 European CIOs. For 2003, the CIOs said they expect their IT spending to increase an average of only 1% over last year's levels.

Also in the September report, the CIOs said that in an economic recovery, they would be more likely to spend money on software than on hardware and networking. Therefore, Merrill analysts predict that higher application software sales will be the "true sign" of an IT spending recovery.

Dressel Named Siemens U.S. CIO

Siemens Corp., the U.S. arm of Siemens AG, named Jan D. Dressel as CIO, effective Nov. 1. Dressel, 43, will be responsible for the company's U.S. IT and e-business strategies and will be based at the company's U.S. headquarters in New York. He will report to Klaus Kleinfeld, president and CEO of Siemens Corp. Dressel, who has worked for Siemens for more than 20 years, previously served as CIO for Siemens Asia Pacific in Singapore.

ACS Wins $6M Medicaid Deal

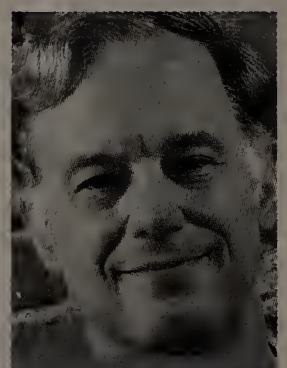
The state of Washington has awarded Dallas-based Affiliated Computer Services Inc. (ACS) a $6 million, five-year outsourcing contract to provide EDI transaction processing that's compliant with the Health Insurance Portability and Accountability Act. ACS processes about 17 million claims per year for the state's Medicaid program, which represents $560 million in claims payments.

Under the terms of this latest contract, ACS will accept and process transactions via a new HIPAA clearinghouse before they're sent to the Medicaid Management Information System for adjudication.

BART PERKINS

Offshore: The Third Time's the Charm

IN EVERY RECESSION, corporations cut costs by moving repetitive jobs to lower-cost countries. In fact, manufacturing jobs have been moving offshore since the 1950s. The first round of offshore IT efforts began 10 to 15 years ago as a way to reduce the cost of maintenance for legacy systems. In those days, companies set up operations (or used outsourcers) in Ireland and Canada. The really adventuresome went to India.



BART PERKINS is managing partner at Leverage Partners Inc. in Louisville, Ky., which helps CIOs manage their IT suppliers. He was CIO at Tricon Global Restaurants Inc. and Dole Food Co. Contact him at BartPerkins@LeveragePartners.com.

The second round of offshore IT was focused on fixing the Y2k problem. Offshore activity boomed, providing a way to obtain hard-to-find skills (like Cobol) and reduce the cost of tedious work.

Rounds 1 and 2 of offshore IT outsourcing had mixed results because of telecommunications difficulties, immature systems-development methodologies and cultural differences.

But now offshore IT work is becoming increasingly popular in the executive suite. Most companies are at least experimenting with sending IT offshore, and a few have jumped in with both feet. Research indicates that these efforts will grow rapidly over the next few years, for the following reasons:

■ **Budget pressures.** Although some IT budgets are starting to rise, most organizations will continue to experience budget constraints. Some CEOs believe that IT budget cuts over the past few years have *not* hurt their businesses. Budgets will likely remain flat, and most companies will continue to pursue cost reductions.

■ **"No-win" functions.** Some parts of IT are always expected to work, much as you expect a dial tone when you pick up a telephone. The CIO isn't complimented when the network is running (but will hear about it when the network is down). Smart IT organizations are shedding these thankless functions.

■ **Specialized service providers.** Specialists often deliver better service. Without the huge scale, it's very difficult for in-house IT departments to match the skills and specialized technology of an outsourcer's well-run help desk or server center, for example.

Will offshore IT succeed this time? Yes, this round is likely to be more successful because of the following industry changes:

■ Telecommunications quality has improved dramatically. International calls are often indistinguishable from local ones. And costs have plummeted. Long-distance calls to India can be as low as 2 to 3 cents per minute, if purchased in bulk.

■ Offshore companies are trying to make geographical distances transparent. Recently I received a call and follow-up fax from the administrative assistant of a Chicago-based sales rep. I later learned that the assistant lives in India but works the rep's hours. I never suspected she wasn't in Chicago.

■ Offshore software-development processes are improving. Indian firms in particular have focused on getting Capability Maturity Model Level 5 certification. Our research indicates that India has two to three times more CMM Level 5 centers than the U.S.

■ Offshore companies are expanding their offerings. Most have moved beyond being mere body shops and are taking on project management responsibility. Others have vertical industry experience and/or business process outsourcing capabilities. They've grown rapidly and are winning contracts with major U.S. customers.

■ Several lower-cost countries are taking steps to protect intellectual property and data. For example, India is now debating data privacy legislation modeled on the European Union's Data Protection Directive. The legislation's effectiveness won't be certain until several cases have been tried under the statute, but the direction is clear.

■ Culturally, companies have adjusted to working with team members who aren't physically located in the building. Telecommuting paved the way; teams comprising people in multiple locations are now commonplace.

■ IT is maturing. Deliverables and service levels are emphasized as IT becomes more of a science and less of an art. In the early days, one programmer defined requirements, wrote code and provided user support, all without specifications or documentation. Today most large-scale projects are highly defined, easily segmented and well documented. Many development and support functions that require little user interaction can be performed virtually anywhere, without sacrificing efficiency or effectiveness.

Absent war, terrorism or legislation, Round 3 of offshore IT is likely to be highly successful. Telecommunications have become robust enough to make it practical. Offshore companies are changing their business models to better meet customer needs. IT as a discipline is maturing. And, finally, remote workers are culturally acceptable. **41623**

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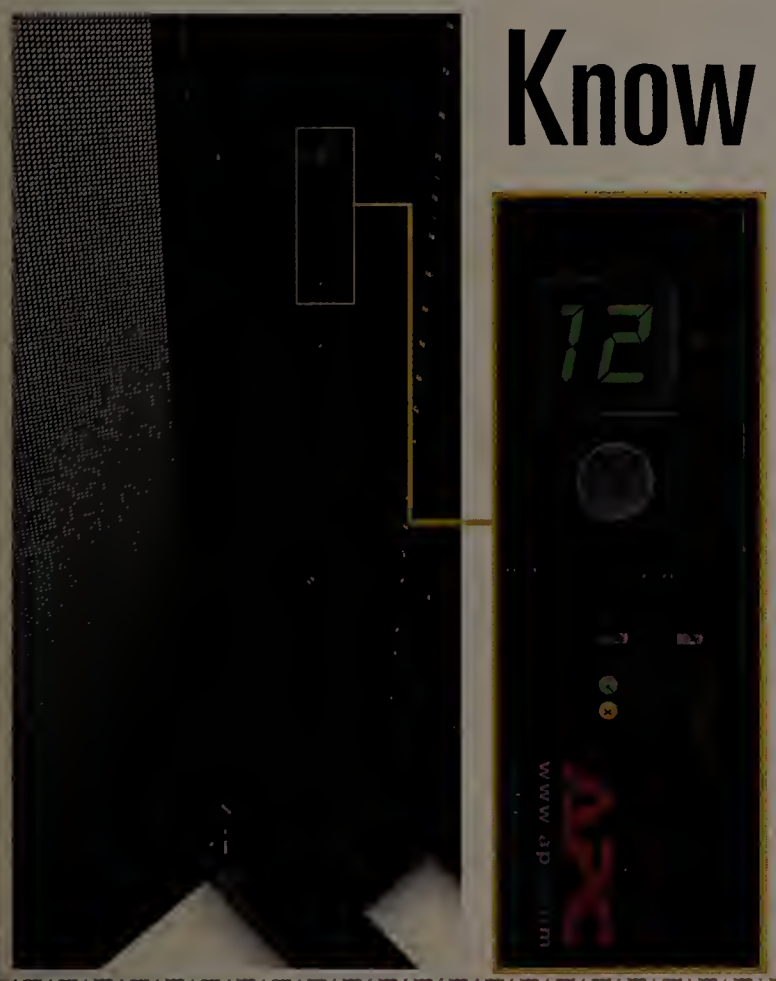

Know when enough is enough

...even when you're not there.

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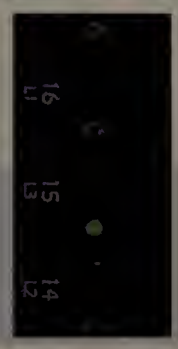
Protect circuit from unauthorized use
Turn outlets off when not in use



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Senior GIS Developer sought by information technology company in Englewood, CO to work in Westminster, CO and other unanticipated job sites in the U.S. At a senior level, engage in full life-cycle software development of Geographic Information Systems software for utilities and communications companies. The software applications are client/server based, incorporate relational database management systems, and utilize Windows NT or UNIX operating systems. Analyze requirements. Create designs and design documentation. Code, test, debug, enhance and implement the software applications. Complete integration with customers' existing systems and provide customer support as needed. Use Java, C++, Oracle, PL/SQL and proprietary languages and tools in the design and development process. Requires bachelor's or foreign equivalent in computer science engineering (including electronics and communications engineering) geography or related field. Three years experience in designing and developing Geographic Information Systems software applications in a client/server environment for telecommunication and utility companies using Oracle, PL/SQL and C++. M-F; 8am-5pm; $82,777/yr. Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5055570.

Director, Global Development Interfaces: Direct the management of the design, development and implementation of Heidelberg's global applications and software systems , including, but not limited to managing ERP implementations utilizing multiple mySAP solution components (e.g. SAP Enterprise version and SAP BW), associated system upgrades and hotpack installations; the design, development, and administration of Mobile applications utilizing Microsoft NET/JAVA environment, MS-SQL /SeeBeyond middleware, SAP R/3, AS/400 and Clarify as backoffice systems; the design and implementation of inbound and outbound interfaces connecting SAP R/3 /mySAP solutions to and from various external systems; the implementation and support of Internet/Intranet Business applications utilizing JAVA/ATG/SAP technology solutions; and manage the recruitment, hiring, firing and assignment of project managers, professionals and support personnel. Must have a Master s Degree or foreign equivalent in Computer Applications or a related field and three (3) years of experience as a systems engineer or related field or a Bachelor s Degree or foreign equivalent and 5 years of experience in systems engineering or a related field. If interested, submit resume to: Crawford M. Scott, Heidelberg Americas, Inc., 1000 Gutenberg Drive, Kennesaw, Georgia 30144

ENGINEER, Application (DSL). For fieldwork in various location in San Bernardino County. Send resume to Chris Nallan, South Valley System Resources, Inc. 381 Kishimura Dr., Gilroy, CA 95020.

Senior Research Scientist. Responsibilities include: 1/ Conduct research in the areas of pattern recognition, image analysis, PDE -based image processing, texture synthesis, and 3D data processing; 2/ Conduct research in the areas of wireless data communication and data processing; 3/ Develop applications related to object extraction, target tracking, and image browsing and retrieval; 4/ Develop applications related to wireless multimedia communication and processing; and 5/ Help transition applications to commercial products for wireless platforms, including BREW, J2ME, and Symbian. Requires Ph.D. in Electrical & Computer Engineering and minimum 1 year exp. in Electrical/ Computer Engineering, Inc. exp. with MFC programming, industrial-level software development, and computer networks and communication. 40 hrs. per week, 8:30 am - 5:30 pm. Job site: Raleigh, NC. Send resume to Gary E. Ban, Chief Operating Officer, Summus, Inc. (USA), 434 Fayetteville Street Mall, Suite 600, Raleigh, NC 27601. All applicants must have the legal right to work in the US.

Dassault Systemes Services, LLC is dedicated to helping its customers realize the benefits of 3D product lifecycle management (PLM) solutions.

We are looking for consultants to analyze our manufacturing clients needs and configure solutions using the Dassault family of PLM software. Consultants will work on site at customer's locations and will be required to travel throughout the United States 60% of the time.; implement PLM software; and provide technical support. These positions require a Bachelor's degree in Mechanical Engineering or a closely related field and experience with PLM software.

Dassault Systemes Services, LLC promotes a work environment that focuses on integrity, teamwork and fun. If you qualify, please send your resume indicating the position of interest to: Dassault Systemes Services, LLC, 10926 David Taylor Drive, Suite 300, Charlotte, NC 28262.

We are an equal opportunity employer.

Software Enggs. to lead teams to design, develop/maintain web appls using Java, J2EE, Servlets, ASP, EJB, HTML, JavaScript, JSP, VB, SQL Server, etc on Windows & UNIX OS; provide training & user support for the systems and related appln internally & to clients; debug and modify existing software. Require: MS or foreign equiv in Comp. Sci / Comp. Engg. & 1 yr exp. in IT. Full time. High Salary. Travel involved. Respond by mail to HR, ABZ Consulting, Inc., 2600 Century Prkwy, Ste 100, Atlanta, GA 30345.

Software Engineer
Develop & modify customized computer applications including RDC and Oracle Clinical. Use UNIX, shell script, c/C++/Java programming, PL/SQL, DYNAMIC SQL. Work with DBA on performance tuning, database layout and design. Define functional requirements, detail design requirements, document programs as-built. Production support, including backend database corrections and customer support. Req. 5 yrs prev exp. Send resume to BLC Consulting, Human Resources, 26 Jefferson Court, Wethersfield, CT 06109.

Network Engineer in Stamford CT-Mgmt of deployment & implmtn of various Exchange 5.5 server/Exchange 2000 server solutions; in Win 2000/NT envrmt; day to day Exchange server admin. Admin of server based applics. Admin of Cisco Routers connecting branch offices & Virtual Private Networks (VPN) appliances for remote uses. Maintenance & troubleshooting of Raptor Firewall & Nokia appliance running Checkpoint Firewall systms for network. Perl & CGI prgmg for custom s/ware applic. Bach in Comp Sci or Engg or its foreign academic equiv + 2 yrs exp in job offd. Res: Evero Corp., David Jacobson, 185 Hillside Ave, NY, NY 11596 or Fax: 516-747-8383.

Telecomm co. in Framingham, MA seeks Embedded Software Engineer to develop real-time embedded telephony systems, including program digital signal processors for modem transport/voice coding and embedded control processors for hardware control/encoded media packetization. Must have BS in Electrical, Electronic, or System Eng.; 2 yrs software development exp., including experience with embedded software development, C, and assembly for control/signal processors; knowledge of Internet Protocols for media transport in telephony applications. Salary $81,730/yr. Submit 2 resumes to Case #200202669, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

Multiple openings for Prog/Sys Analysts, S/W Engineers to design/develop S/W appls using some of the foll-COGNOS, datawarehousing; Cobol, CICS, DB2; Java, PB, HTML, XML; C++, VB, Oracle, Dev 2000; wireless, web, OO technologies; SAP, ABAP/4; Oracle/Sybase/ Informix database admin; Unix/NT system admin. BS/MS or foreign equiv. in CS, Engg, Science, Math,Business or related field and relevant exp. High salaries, F/T. Travel involved. Respond to: HR, Smartsoft International, Inc., 4898, South Old Peachtree Road, Ste 200, Norcross, GA 30071.

Programmer of web-based applns. in Visual Basic, C++ and Access Interactive Web Design. Maintain company's mail order catalog system; develop new modules; custom reports to assist mktng., finance and shipping using Pick Database; integrate off-line processing/ online ordering systems; maintain Unix Server on Pick platform, workstations, networks and add users. BS in CS or Equivalent & 3 yrs. exp. in job duties or 5 yrs. exp. in job duties w/o college degree. Apply to: HR, Atlanta Cutlery, 2147 Gees Mill Road, Conyers, GA 30013 with proof of permanent work auth.

Systems Analyst: Design software programs for company in the area of accounting; Creates & maintains company database; Designs & maintains the Internet & e-business strategy & the website of the company; Works w/Macromedia flash & Photoshop; Works w/ASP & cold fusion; Works w/SQL server 7.0-BS in Computer Information Systems & 2 yrs of exp.,40-per wk, 9-6PM, Fax resume to: Alexander Motors Int. Corp. Attn: David Adrian Soae (305) 649-9932

COMPUTER
PricewaterhouseCoopers LLP's GRMS practice has opportunities available for experienced professionals in the area of Computer Security Systems Integration. Positions require a bachelor's degree (master's preferred) and 2 to 4 yrs related exp. Additional qualifications needed include experience using LDAP directories, RDBMS, UNIX/Solaris, NT Web Security Tools, web server installation and configuration, firewalls, routers, load balancing and HTML, JSP, ASP, C++, & Perl language. Job site/location: New York, NY. Interested candidates please reference job code 549PBG & mail resume to David J. Decarlo, 10 Tenth Street NW, Suite 1400, Atlanta, GA 30309. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S.

Microsoft Certified Trainer - Solartech is seeking a FT MCSD .NET trainer with 3 yrs exp with BS in CS/MIS or equivalent field. Candidate must have MCAD/MCSD for .NET certificates and valid MCT status; exp in full life cycle development of Microsoft .NET technology. Strong web based application development exp is a must (2 domain names). Programming skills, Access, Flash, XML, web service, ASP ASP.NET, VB Script, Java Script, Com/DCOM, Java, SQL Server, C++, C#, Candidate will be involved in coordinating all aspects of a new MCSD training course. Strong communication skills is a must. Pls fax resume with salary reqs to (201)8079815 (prefer) or career@solartechnj.com; Job code: CT025

Computer Programmer, Printers Manufacturer. Must have a Bachelor's Degree/equiv. in related field, and 2+ yrs IT exp. Plan, develop, test, and document programs. Evaluate user requests for new and modified programs for business applications using knowledge of Visual C++, Visual Basic.Net, ASP, .NetFramework, and SQL Server 2000. 40 hrs/wk, 9-5. Competitive salary. Send resume to: Prism, Inc., 1950 Evergreen Pkwy., Ste. 500, Duluth, GA 30096.

Network Security Administrator. Install, config, maintain LAN, WAN, Internet. Maintain internal & external Web presence. Admin. networks, maintain hardware & software, & perform syst & server backups. Design, support, maintain server syst & software. Monitor & assure network user availability. Plan, coord, & implement security measures to regulate access & prevent unauthorized use or modification. Institute & apply EDI protocols for B2B communication. BS + 2 yrs exp. Send resume to DSS Enterprises, 1932 Valewood Cir., Hoover, AL 35244.

PROGRAMMER/ANALYST (Manh). Develops business applications relating to internet, pharmaceutical,business,inventory control,insurance, human resources, and invoicing. Knowledge of Visual Basic, Crystal Reports, Sybase SQL 11, SQL-Programmer, ERwin API, Active X, Windows NT, Unix, MS Access, Cognos Impromptu. B.S. Comp.Science 2 yrs. exp. $87,776/yr. 9AM-5PM, M-F, 40 hrs/wk. Send resume or letter describing qualifications in duplicate to: SAH1591,PO Box 703,New York, NY 10014-0703.

Distributed Applications Developer. Advanced level position in Chicago. Send resume to Buck Consultants, Inc. Attn: J. Perez, 500 Plaza Drive, Secaucus, NJ 07096. Must use Ref#DAD-3 EOE.

Prog Analysts to analyze, design s/w appls using SAP R/3, ABAP/4, C, C++, Java, VB, JSP, JScript, HTML on UNIX/Windows os; gather/document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equivalent in CS/Engg (any branch)with 2 yrs exp in IT. High salary. F/T. Travel involved. Resume to HR, Smartsoft International, Inc., 4898, South Old Peachtree Rd, Norcross, GA 30071.

Staffing Tree, LLC has openings for System Analyst, IT consultants/recruiters. BS or equivalent required. Exp. in Oracle, Java, C/C++, SQL & IT placement/marketing preferred. Travel required for some positions. We sponsor green card. Please contact debdas@staffing-tree.com.
EOE.

IT professionals (programmers/ system analysts, software engineers) wanted by Advanced Technology Group USA. Minimum requirement is BS. Skills in Java, Oracle, SQL, HTML, WebLogic, JSP, VB, EJB are strong plus. Please send resume to info@atgusainc.com. EOE

Seeking qualified applicants for the following positions in Memphis/Collierville, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, math, statistics, business or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with software development life cycle process and SQL also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Program Manager
Smarte Solutions, Inc. seeks Special Projects Program Mgr in Austin, TX. Manage special projects for customized implementation of technologies. Customer interface. Code conversion using VC++, MFC, + Vis Basic. Work w/web-based applics, e-commerce systems, SQL, CD standards, encryption & anti-piracy methodologies incl ISO 9660 + DPP protocol specs. Must have BS in Comp. Sci + 1 yr relevant exp. Resume to Smarte Solutions, 611 S. Congress Ave, Suite 350, Austin, TX 78704.

Want a new IT career?

Check out our jobs in the combined CareerJournal.com database.

www.itcareers.com

Where The Best Get Better!

www.itcareers.com

LogicaCMG has an opening in its Dearborn, MI office for a Software Engineer to convert data from mainframe Legacy systems to Datawarehouse on Teradata & SQL server. Must have a Bachelor's degree in Computer Science and 1 year of experience in software applications, including experience with Queryman, Data Modeling, Data Warehousing Concepts and Citrix Nfuse. Interested candidates should send resume to Ref. SE, Kathleen A. Boyle, Executive Assistant for Human Resources, LogicaCMG, 32 Hartwell Avenue, Lexington, MA 02421.

Prog. Analysts to analyze, design, develop network security s/w using VC++, C++, SQL Server, MS Access, IBM Visual Age, Apache Web Server, etc. under Windows/UNIX os; design server side Java Components, GUI using JScript, JSP, Servlets, HTML, etc; design and optimize database using JDBC, SQL, ODBC, etc; develop encription schemes; deploy, evaluate, test appls. Require BS or foreign equiv. in CS/Computer Engineering with 2 yrs exp in IT field. High salary. travel involved. F/T. Resumes: HR, Lancope, Inc., 3650 Brookside Pkwy, Suite 400, Alpharetta GA 30022.

Seeking qualified applicants for the following positions in Memphis/ Collierville, TN: Senior Technical Analyst. Research, evaluate, implement and coordinate changes to complex computer systems/applications. Requirements: Bachelor's degree* in computer science, math, engineering or related field plus 5 years of experience in systems/ applications development, including programming. Experience with C and/or C++, Java and Unix development also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

WHITTMANHART is looking for a Senior Consultant, Oracle Financial Applications, based in Chicago, IL. Applicant must have 2 yrs experience implementing Oracle 11i using Oracle Application Implementation Methodology (AIM), Oracle Developer 2000, Discoverer and Oracle Workflow. Send resume to: Recruiting, WHITTMANHART, 440 W. Ontario, Chicago, IL60610. Reference job no. 03196. WHITTMANHART is an equal opportunity employer.

Programmer Analyst - Experience in all phases of software development - Must be able to Design, develop, test, implement and customize business software applications using UNIX (AIX, Solaris and HP-UX), C++ (Visual C++ and C++), C, UML, Rational Rose, SQL, ESQL, PL/SQL and JAVA. Must have used Oracle (Various Versions), Sybase (Various Versions) and Informix (Various Versions) for data store. 2 years experience on the job with a Bachelor's degree in Science/Math/Computer/Engg. Salary 70K. Shiva Systems 5749 Camino Del Sol Unit 206 Boca Raton FL 33433.

Computer

Systems Analyst in Trumbull, CT to design, develop, implement, maintain, and fine-tune Windows NT as well as tandem-based real time systems operating in Guardian environments using C/C++, COBOL, Java, DDL, TAL, and pTAL programming languages and Non-stop SQL, Enscribe, Enable and Enform database technologies. Industry experience and knowledge in financial products, market data preferred. BS in Computer Science plus 1 yr. exp. as Systems Analyst or, alternatively, 3 yrs. exp. as Systems Analyst. Please send resumes to: The Nasdaq Stock Market, Inc. , 80 Merritt Boulevard, Trumbull, CT 06611, or send electronically to careers.ct@nasdaq.com, ATTN: Human Resources. Please reference the following number on your resume, #200306. We are an equal opportunity employer.

Prog. Analysts to analyze, design, develop appls using C++, VB.Net, ASP.Net, Java, JSP, Java Script, COM, Oracle, SQL Server, IIS, HTML, etc. under Windows,UNIX os; perform system & functional analysis; document development process; test, debug and upgrade existing software. Require candidates with BS or foreign equiv. in CS/Engg.(any branch) & 2yrs exp. in S/W field. F/T. Travel involved. Competitive salary. Send Resumes to: HR, Softrim Corporation, 3443 Pine Ridge Road, Naples, FL 34109

Junior Software Engineer
Design web pages by using Cold Fusion. Design/develop database using MS Access and SQL. Using Dreamweaver & Flash 4 as well as HTML-DHTML. Testing the functionality of web pages and systems. Provide client technical support. Test/maintain software. Require B.S. degree in Information Systems & familiarity with Thai culture & ability to design web pages in Thai. $39,800 Send resumes to Dept. of Workforce Services Attn. Erlinda Anderson Job Order #8065570 140 E. 300 S. SLC UT 84111

COMPUTATIONAL ANALYST to develop numerical methods, perform statistical analysis and generate reports for web traffic for the company's hosting clients; optimize web traffic delivery with intelligent targeting algorithms for web ads; use simulation computation to stress test the company's network servers; provide technical support to clients in relation to these hosting and advertising services. Require: B.S. in Physics/ Mathematics/Computer Science. Competitive salary offered. Apply with resume to: Manager, The Personnel Department, Inc., 2971 Flowers Rd. S., Suite 220, Atlanta, GA 30341.

Software Programmer: Analyze & design core business modules using PowerBuilder, Visual Basic, SQL Server, XML; write stored procedures; write scripts & report templates for CathSource, HeartSource, & OrthoSource applications; create data extracts & develop documentation for user's guide. Req. Bachelor's or foreign degree equiv in CS, IT or related plus 2 yrs work exp in job offered or in related occupation as Programmer, Consultant or any suitable combo of edu., training, and/or work exp. Send resume to Goodroe Healthcare Solutions, Inc. 100 Crescent Centre Pkwy, Ste 720, Tucker, GA 30084 Ref JB

SOFTWARE ENGINEER (2 positions) to provide on-site consultancy in design, development, customization, testing and maintenance of e-commerce web-enabled applications software using .Net, CSharp, ASP, ADO.Net, ActiveX, COM/DCOM, XML, VB, SQL Server and related technologies on AS/400; provide software support on Windows 2000, Internet Information Server and SQL Server. Require: Bachelor (or equivalent) in Computer Science/Electronics Engineering and three years experience in the job offered or any experience providing skills in described duties. 40% travel required to client sites within the United States. Salary: $65,000 per year, 40-hour/week, 9 am to 5:30 pm, M-F. Apply with resume to: President, K2 Technologies, Inc., 2107 Franklin Drive, Papillion, NE 68133.

Java Developer to program, analyze, test, troubleshoot, and develop web-based Java software as a front end in multiple RDBM (such as Foxpro, Oracle, Interbase and Sybase) legacy informational systems installed in a distributed client server environment including implementation in an intra/internet environment. May use tools such as J Builder, J Developer, Weblogic, Websphere, JDK, EJB, ETL, Java Swing, Corba, Jdbc, or XML/XSLT as dictated by particular project assignments. Requires Bachelor's Degree in Computer Science, Mathematics, or any Engineering or Physical Science field and one year direct experience. Work location: Various unanticipated client sites. Send resumes only, no calls, to: Perry Senaphathy, Genome International Corp., 583 D'Onofrio Dr., Madison, WI 53719.

IT Program Manager: Lead business improvement projects to define business requirements, detail functional and technical specifications, develop and implement IT (process and technology) solutions. Work with business executives to identify, prioritize and scope IT initiatives. Manage team resources to ensure quality and delivery of project milestones. Requirements include a Bachelor's degree or equivalent in Business Management, Information Technology or related field and four years of pre- or post-degree experience in the job offered or related field of business process development. Applicants must have unrestricted authorization to work in the United States. Salary $99,413/ year. 40 hours/wk. Respond with two copies of resume to Case #200203025, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114

PROGRAMMER ANALYST (Hackensack, NJ) to analyze, dsgn, dvlp, implmt, test, edit & create documentation & maintain & debug s/ware applics & systms utilizing TFD, UID, Passport Messaging, Dynamic SQL, C, Informix, Unix, WinNT & Korn Shell. Bach in Eng, Math or Comp Sci or its foreign academic equiv + 2yrs exp in job offd. Res: The Shubert Organization, Inc., Attn: Cathy Cozens, 234 W 44th St, NY, NY 10036. Fax: 212-944-4569 email: cathyc@shubertorg.com

CHIEF ARCHITECT/COMP. PROGRAM. MGR

Des Plaines, IL: Resp. for the dsgn, dvlpmnt & implementation of co's new generation PrintFlow Scheduling prog. Specific duties include: (i) overseeing workflow analysis, prog. dsgn, arch. & implementation of prog.'s core functionality; (ii) supervising comp. progrmrs & sftwre engnrs in their task of dsgng & implementing PrintFlow Scheduling prog.; (iii) coordinating integration efforts to link co's new sys. w/3rd party dbases, mfg mgmt sys. & shop floor data collection progs.; & (iv) directing & coordinating co's AHP research & dvlpmnt activities. MS in Electr. Engnrg or Comp. Sci. reqd + 2 yrs exp. in position offered or as a Sr. Systems Analyst. Must have: (1) exp. applying Object-Oriented skills, including C/C++, Visual Basic & Smalltalk 80 languages, to model & simulate industrial processes, digital image processing & on-line data collection in printing & paper industry; & (2) exp. w/event-driven simulation sys., load balancing algorithms, scheduling algorithms, fast graphic routines as well as stat. analysis. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $88,000/yr. Qualified applicants fax resume to Jackie Cimino, Director, Human Resources, PrintCafe Systems, Inc. at (412) 456-7829.

SAP Programmer/Analyst: Design, develop, test and support technical and functional SAP R/3 applications in the materials management, production planning, finance, controlling, sales and distribution, service management and quality management modules of SAP. Apply knowledge of SAP data model and business problems and implement them in SAP environment. Support and develop electronic data interchange. Design and develop interactive and batch reporting, the ABAp/4 data dictionary, SAPScripts and dialog programs. Work closely with Sap analysts and super users within the business community. Design and develop batch data conversion sessions on call transactions, interfaces, data conversion, correction and transport system. Requirements include a Bachelor's degree or equivalent in an Engineering discipline or closely related field and three years of work experience in the job offered or related field of ABAP/4 programming. Applicants must have unrestricted authorization to work in the United States. Salary $73,500/year. 40 hours/wk. Respond with two copies of resume to Case #200203098, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114

DBAs to install, configure/ administer Oracle database, SQL*Net, Net8; design & develop appls using Oracle, Dev 2000, SQL, etc; maintain & monitor backup, recovery procedures and maintain database security;design, code Java2 Beans for Oracle database access; perform data entity design in Erwin, web interface design & appl logic definition. Prog. Analysts to analyze, develop appls using OOAD,Java, J2EE, ASP, EJB, XML, Jscript, Active X, JFC Swing, HTML,etc. under Windows, UNIX os; perform req analysis; provide on site maintenance such as debug, modify, fine tune & code optimization. Require: BS or foreign equiv. in CS/Engg. (any branch) & 2yrs exp in IT. Comp. Salary. Travel involved. F/T. Resume to: Infilink Corporation, 4 Concourse Parkway, Ste 270, Atlanta, GA 30328

Senior Software Engineer. Independently generate business requirements, develop business processes, and perform software engineering development to meet business needs. Support all business applications (enterprise class applications, browser-based applications, client-server applications, and n-tier applications), and analyze business process impact. Use knowledge and experience in bug tracking, knowledge management, and customer relationship management to fully integrate existing business processes and software systems. Design, develop, and analyze reports that monitor business process statistics; suggest improvements based on analysis. Use technical expertise of relevant products and technologies, including Visual Basic, C, C++, Java, HTML, XML, Java, JavaScript, SQL, PL/SQL, Perl, CGI, XML, Seagate Crystal Reports, Amdocs Clarify, Rational ClearQuest, Primus, Oracle, SQL Server, Windows, Linux, SunOS/Solaris, UNIX, MS Office and MS Project. Requirements include a Master's degree or equivalent in Computer Science, Information Technology, an Engineering discipline or related field and two years of pre-or post-degree work experience in the job offered or related field of software engineering using HTML and Java. Applicants must have unrestricted authorization to work in the United States. Salary $85,561/year. 40 hours/wk. Respond with two copies of resume to Case #200203160, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

Technical Support Engineer sought by software development, sales and professional services company in Englewood, CO to work in Englewood and other unanticipated job sites in the U.S. Under close supervision, analyze and resolve code and software application errors of Geographic Information Systems software applications. The applications incorporate relational database management systems and are developed in a client/server environment and run on Windows or Unix operating systems. Test new applications; install and implement applications. Utilize object-oriented programming in resolving errors. Provide phone and e-mail support to customers to resolve applications and system problems. Work is closely monitored. Requires bachelor's degree in computer information systems, GIS, or related field. Working knowledge of software applications which run on Unix or Windows NT operating systems, and of object-oriented programming (working knowledge may be gained through employment experience or in an academic setting). M-F; 8am-5pm; $42,000/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5057364.

Java Programmer Analyst. Provide technical computer support and user assistance in developing, operating, and maintaining all web application programs for all divisions of Morley Companies, Inc; maintain existing web applications; and prepare program documentation. Must have Bachelor's in Computer Science or related, and knowledge of AS400 platform, Web Sphere Application Server, and HTTP server for IBM, EJB, Java, JSP, & Javascript.. Send resume: Morley Companies, Inc., Attn: Richard Mott, One Morley Plaza, Saginaw, MI 48603.

SENIOR DATABASE ADMINISTRATOR. Duties include: Apply knowledge of DB management systems to: design logical and physical db; coordinate physical changes to db and codes; and test, maintain and implement physical db. Responsible for all phases of db implementation. Duties and tasks include; assist in the day-to-day operation of Oracle db systems in UNIX mainframe envir. including ETL, table creation, table analysis, table indexing, query creation, and implement query and ETL requests from internal staff analysts and scientists using ACCESS or another db system; Migrate db of size 1.3 Terabytes; setup OEM using 3-tier architecture (console, OMS, repository); configure Intelligent agent and create events / jobs for proactively monitoring; implement various Oracle techn. and features including Standby Database, RMAN, Transportable tablespace, materialized views, partitioned tables, OEM, iAS; write Unix routines using ksh, awk, sed, iostat; assist in writing script to implement the synching and splitting of the BCV using EMC- Time Finder and Oracle Transportable Tablespace feature; validate, transform and load the XML file into oracle db tables using Oracle XDK toolkit. Min. Reqt's: MS (or equiv) in CS, EE, IT, MIS or related field of study plus 2 yrs exp. in job offered or related occupation in DBA development OR IN ALTERNATIVE a BS/BA (same fields of study or related) plus 5 years of progressive experience in job offered or related occupation in DBA development. MUST possess; demonstrated knowledge and experience with: (1) Development of Oracle database architecture in UNIX mainframe environment; (2) SQL, PL/SQL and SQL Loader; (3) Installation and Configuration of Oracle iAS, Oracle Parallel Server; and (4) either Java tools and language or Java Web Server is strongly preferred and Java Web Server. Basic pay range is $80,000 to $110,000 per year FT and standard company benefits. EEO. Submit 2 resumes in response to Case Numbers 2002-03205 & 2002-02865, Labor Exchange Office, 19 Staniford Street, 1st floor, Boston, MA 02114.

Programmer/Analyst sought by software development, sales and services company located in Denver, CO to work in Westminster, CO and other unanticapted job site in the U.S. At a senior level, engage in full life-cycle software development of Geographic Information Systems software for utilities and communications companies. The software applications are client/server based, incorporate relational database management systems, and utilize Windows NT or UNIX operating systems. Analyze requirements. Create designs and design documentation. Code, test, debug, enhance and implement the software applications. Complete integration with customers' existing systems and provide customer support as needed Use Java, C++, Oracle, PL/SQL and proprietary languages and tools in the design and development process. Requires bachelor's in computer science or engineering (including electronics engineering) or related field. One year experience in developing software applications which incorporate relational database management systems in a client/server environment. M-F; 8am - 5pm; $60,000/yr. Respond by resume to Employment Programs, PO Box 46547, Denver, CO 80202 and refer to CO5057368.

Intergraph Mapping & Geospatial Solutions seeks candidates for Product Development positions requiring the minimum of a BS in CS, Math, Engineering or a related technical discipline and experience as indicated. May have MS or PhD with less experience.

• Sr. Software Analysts with 3 years of experience in programming and software analysis including 1 year of experience with C/C++, VB, or VC++, Windows, GIS, computer graphics or imaging processing applications.

• Software Consultants with 6 years of programming/software analysis experience using VC++, VB or C/C++ for GIS, computer graphics or imaging processing applications.

• Support Engineers with 3 years of software support/testing experience using C/C++, VB, VC++ in Windows for GIS, computer graphics or imaging processing applications.

• Utilities & Communication positions:
• Sr. Software Analysts with 3 years of experience in programming/software analysis including 1 year of experience with VB, C/C++, or VC++ for GIS, computer graphics or imaging processing applications in Windows.

• Sr. Application Engineers (positions in AL and Bellevue, WA) with 6 years experience testing, investigating and resolving issues associated with deployment of software solutions using RDB in Windows, including 2 years of experience with SQL, XML or HTML, VB, C++ and Oracle.

• System Consultant with 6 years experience in design and implementation of GIS projects for utility companies using FRAMME, VB, Qracle SQL, PL/SQL and ODL.

• Staff Marketing Support Specialist with 6 years of experience in technical marketing support on an intemational basis, including email campaign design, web programming, web site and database design, development and programming. Experience must include 2 years in GIS.

Resumes to B. Mosgrove, IMGS, 170 Graphics Drive, Madison, AL 35758, specifying position applied for. IMGS is an Affirmative Action/Equal Qpportunity Employer/M/F/D/V.

Senior Oracle Database Administrator

At CSC, marketability and mobility ere the keywords of career success. As a global $14.5 billion leader, CSC promotes a colleboretive and entrepreneuriel environment. Your rewards are dynamic opportunities, e high level of responsibility, end the flexibility to chert your career success at our Newerk, Delawere locetion. You will be on en on-call rotation (24 hours/7 days - 1 week out of 5 weeks). Requires e BS or equivelent and relevant experience.

CSC offers competitive salanes and excellent benefits. Pleese forwerd cover letter end resumes to: CSC, **Attn: Humen Resources, 400 Commerce Drive M/S 1SB6, Newark, DE 19713** Reference job code **MV012704** In cover letter. EOE, M/F/D/V.

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Full-time Director, Customer Care: Direct and manage customer care services programs for software product sales within the Air Transport Industry. Responsible for supporting the Industry and Passenger Solutions applications with all customer service issues, including service delivery, problem management, and service levels. Drive customer service improvements through refining processes and procedures using Lotus Notes, Microsoft Outlook, Smartsuite, MS Office, Corel Draw, UNIX, Windows 2000, Windows NT, OS/2. Must have Bachelor's degree in Business, IT, or related field. Foreign degree equivalent accepted. Must have 6 years experience in job offered or position with same duties. Salary: $95,000. Send resume to Natasha Lyttle, Ref. # NCL002, SITA INC, 3100 Cumberland Boulevard, Suite 200, Atlanta, Georgia 30339.

Full-time Programmer Analyst. Must have a Bachelors Degree in Computer Science or related field. Foreign degree equivalent accepted. Educational or work background must have included the following skills: "Promising Related" Qracle Applications, Oracle Applications 11i, SQL, Report Writes, Unix, MSQI, Qracle ERP applications including the following: QMS, APS (GATP/SCP), PL/SQL, C, Perl, MQSeries and XML. Salary Competitive. Send resume to: Robbin Lee, UPS SCS, 12380 Morris Rd, Alpharetta, GA 30005. Employer will not sponsor visas for this position.

JAVA ENGINEER Utilizing commodities market knowledge, develop object-oriented software using Java and Qracle 8.i RDBMS and Qracle Web Application Server for electronic commodity marketplaces. Design and write software specification for applications based on requirements and architecture specifications. Implement software modules to specification; create test plans and test software modules; develop technical documentation detailing project design parameter; assist in developing user guides/manuals and training material. Perform complex analysis of functional requirements for automation of information processing; translate requirements for large projects, minor enhancements and bug fixes into technical design specification. Require: Bachelor's degree in Computer Science, Information Systems, or closely related field, with 2 years of experience in the job offered or in Software/Network design and development; Prior experience must include 2 years in JAVA and UNIX programming. 8 am to 5 pm, M-F. Send resume to: HR, Intercontinental Exchange, Inc. 2100 RiverEdge Parkway, Atlanta, GA 30328 - (No Phone Calls Please)

Sr. Systems Analyst. Analyze user reqts, procedures, problems to automate processing or improve computer system; Prepare charts and diagrams to detail operations performed by computer programs; Design, analyze, plan develop, implementation, document of applications to convert Qrmet business system functionality to Intranet/Internet; design and maintain intrastructure to support applications; Collect, analyze, report statistics re: Ormet Internet usage; Design, develop, maintain, integrate legacy back-office ERP Systems. B. S. in Comp Sc, Elect Eng, or IS + 2 yrs exp. in field. Exp. in systems analysis and design; case methodologies; database and multiple platform connectivity; designing, developing, maintaining and integrating legacy back-office ERP Systems such as JBA, and ProfitKey and developing e-commerce appl w/ Microsoft. NET, Visual Studio.NET, c#.NET, VB.NET, C++, VC++, AS400, SQL/400, IIS, ASP, HTML DHML, VB Script, JavaScript, UML, Visio, SQL Server 2000 and Oracle 9i. 40hr/wk. $64,500/yr. Must have perm work auth to work in U.S. Send resume to: Ms. Nisley, Ormet Primary Aluminum Corp, PO Box 176, State Rte 7, Hannibal, OH 43931.

Medical Imaging Software Engineer - Must have M.S. in Computer Science or Biomedical Engineering. To participate in the research and development work of the company's new 3D Image display product: Computed Tomography Laser Breast Imaging System (CTLM). Will be responsible for creating an interface software which will integrate functions of scanner control, signal acquisition, image reconstruction, and patient database. Will have the additional responsibility of ensuring that all products are DICQM compatible, developing software for the Company's medical device product, developing utility programs and tools to support other software engineers, and developing documentation as per the Company's software development methodology. Qualified candidates must send resumes to Imaging Diagnostic Systems, Inc, Trishia Firth, H.R. Manager, 6531 NW 18th Court, Plantation, FL, 33313.

Senior Programmer/Analyst to analyze, design, develop implement and support application software in a client/server environment using JSP, Servlets, EJB, Web Services, Cold Fusion and SQL Server under Windows and UNIX operating systems. Require: B.S. degree in Computer Science/ Engineering, or a closely related field with 2 yrs of exp in the job offered or as a Programmer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Pishu Harjani, Focus Software, Inc., 22 Perimeter Center East, Ste 2205, Atlanta, GA 30346; Attn: Job MS.

SOFTWARE ENGINEER to design, develop, implement and integrate web-based application software using Java, JSP, Servlets, JDBC, XML, XSL, J2EE, MySQL and Struts on Windows and UNIX platforms; Design test cases to measure application performance using Load Runner. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered or as a Programmer/Analyst. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Eduardo Santos, Custom Software Solutions, Inc., 1002 Williamson Lane, Snellville, GA 30078; Attn: Job AS.

PROGRAMMER/ANALYST to analyze, design, develop, implement, and support internet/intranet based application software using C, C++, Cold Fusion, MS Access, Java, SQL Server, Power Builder, Oracle, HTML, ActivexControls, Visual Source Safe, and Java Script under Windows operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Programmer. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Send resume to Pishu Harjani, Focus Software, Inc., 22 Perimeter Center East, Suite 2205, Atlanta, GA 30346; Attn: Job SS.

Senior Engineer: Participate in all phases of System Life Cycle to dev auto & other appl in CAD/CAM/CAE/KBE. Prepare specs, sys analysis, design, dev, construct KBE s/wr using ICAD Product, OO dev language based on Common LISP w/ OO IDL. Dev & test Production User Interface, integrate ICAD w/ other appl. Build generative models to capture design, engg, manufacturing & other processes used by engineers. Job location: Farmington Hill, MI & at client sites. Bachelor's in ME, CE, EE, Industrial or Electronics Engg, w/ 2 yrs exp in the job offered or as System Consultant. Degree may be equiv.40 hrs/wk,8am-5pm.$83,388/yr.No QT. Employer Paid Ad. Send resumes to Reference #211445, P. O. Box 11170, Detroit, MI 48202.

Programmer/Analyst: Analyze, design, develop, test, implement, modify and maintain customized software applications in a client/server environment using Oracle databases as well as SAS/IDMS/JCL. May be used on multi- tier systems related to Internet/Intranet/E Commerce. Must have Bachelor's or equivalent in CS/Engineering/Math or related. Must have 2 yrs exp. in job offered or 2 yrs exp. in software development using Oracle Databases. Must be willing to be assigned to unanticipated client sites throughout the United States. Salary: $57,300.10/yr. Hrs: 8:00am-5:00pm, 40/wk. Please send 2 copies of resume to: Case # 200202928, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

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Engineer Implementation Engineer- Design, implement, troubleshoot & test voice recording systems at client sites. Integrate system into client's systems. Participate in developing implementation plans, site surveys & technology assessments. Provide feedback to R&D department. Req'd: Bach. Deg. in Electronic or Electrical Eng'g, 5yrs. exp. in the job offered, or in a computer telecomm. integration occup. Must have exp. with CTI, LAN/WAN, CRM, SOL, & Windows platforms. Must be willing to travel at least 80% of the time (can be based in any location) Resume to: NICE Systems, Inc. 301 Rte. 17 N., 10th Fl., Rutherford, NJ 07070. Attn: G. Farese.

Computer

Java Architect

to work W/ C,C++, Java, XML, SOAP, RMI, J2EE, CORBA, JNI, Tomcat, Ant, Struts, Rational Rose, Siebel, CRM-Call Center, NAS, ERP, AS/RS, Oracle, Windows, Solaris, HP-UX, Linux. Must have BS in CS or related field +6 yrs relevant exp. Resume to Recruit3@artizen.com Artizen, Inc. San Carlos, CA

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Programmer Analyst - various locations throughout the U.S. - Analyze science, engineering, business and all other data processing problems for application to electronic data processing systems. Analyze user requirements, procedures and problems to automate or improve existing systems and review computer system capabilities, workflow and scheduling limitations. Must have Bachelor's in engineering or computer science and 2 yrs exp as comp professional. 2 yrs exp must include 1 yr exp w/DB2, Unix, NT, Peoplesoft Financials 7.5/8.3, SQR, Oracle, Sybase, Windows NT, Peoplesoft HRMS 8.4 and PeopleCode. Must have experience w/developing and testing programs, preparing reports, and performing database analysis. Position is 40 hrs/wk from 8-5 w/yrly wage of $70,000. Submit resume to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Dr. Ste 101, Bulter, PA 16001-5699. Reference job order #WEB362393.

Principal Software Engineer - Westford, MA. Develop traffic management software for real-time multi-service telecommunications switches, including both system software (protocol and call processors) and device drivers. Perform extensive software engineering, including testing, redesign, and assembly-level debugging to make the microprocessor- and microcontroller-based telecommunications products as fast, efficient, and reliable as possible. Requires a Master's degree in Comp Sci, Elec Eng, or related field, and 1 year of exp in job offered or 1 year of exp as Software Engineer or related occupation. The 1 year of exp must include software engineering of real-time telecommunications switches, including systems software and device drivers. 40 hrs/wk, 9:00 am - 5:00 pm, Salary: $95,000 /year. Please send two (2) resumes to: Case# 200203148, Labor Exchange Office, 19 Staniford Street, 1st floor, Boston, MA 02114.

SOFTWARE ENGINEER to design and develop business computer software for manufacturing, distribution and EDI applications using ILE RPG/RPG IV, CLP, SQL/400, EDI (Gentran & Premenos), MS Project, MS Word, PowerPoint and Visio on AS/400 and Windows NT platforms. Require: Bachelor's degree in Computer Science/Info Systems, Business Admin, or a closely related field with 5 yrs of exp in the job offered or as a Programmer/Analyst; Experience gained before or after earning the Bachelor's degree will be accepted. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Sherry Lucki, ABT Solutions, 8529 South Park Circle, Ste 260, Orlando, FL 32819; Attn: Job LP.

Software Engineer responsible for support of PeopleSoft HRMS & Financials involving functional analysis, design and customization of the application. Experience in People Code, People Tools, SQR, Crystal Reports, Work Flow, PeopleSoft Internet Architecture is required.Require: BS Degree in Science/Engineering or a closely related field with 2 years of progressively responsible experience in the Job offered or in the related occupation of Programmer/Analyst. Extensive travel on assignments to various client sites within the US is required. Competitive salary offered. Apply by resume to : Ravi Kandimalla, Everest Computers, Inc., 900 Old Roswell Lakes Parkway, Suite 300, Roswell, GA 30076; Attn: JobMK

Req'd: Computer Software Developer (Delphi Programmer): Develop programs and applications for microcomputers and LAN stations: Design database management systems and environment for MSDOS and Windows '95 operating systems utilizing various software applications written in either DATAFLEX, C or Delphi; Engage in client server applications and SOL Database set up and design; Prepare functional specifications and design software programs and modifications based upon client needs: build detailed specifications and programs for scientific engineering and/or business applications; Test units and computer software systems and conduct end user training programs. Must have bachelor's degree or equivalent in Electronic Communications and three (3) years experience in such occupations as Sr. Programmer, Software Applications Engineer/Developer/Designer/Programmer, Sr. Software Developer/Engineer, Software Development Manager, Programmer/Analyst, MIS Engineer or IP Engineer. Educational credentials as determined by an accredited Credentials Evaluator. 40hrs/wk @ $62,718.24 per year. Must have proof of legal authority to work in the U.S. Send resume to: PO Box 11170 Detroit, Michigan 48202. Reference NO.: 211076 EMPLOYER PAID AD.

UNIX SYSTEM ADMINISTRATOR: Maintaining and administering critical Solaris and AIX Unix Servers. Work with a support team and provide 7x24 coverage for the TOS Unix Infrastructure. Provide technical guidance and implementing Innovative solutions to enhance reliability, availability and performance of production systems. 40 hours per week. $56,000/year. 8:00 a.m. to 5:00 p.m. Bachelor's degree or equivalent in Computer Science/Engineering. Equivalent work experience or a combination of work experience/Education would be accepted in lieu of a bachelor's degree. Five years of experience in job offered or five years of experience in related occupation of Unix/Solarix/AIX systems administration. Must have proof of legal authority to work in the United States. Send your resume to: South Dakota One-Stop Career Center, 811 E. 10th Street, Sioux Falls, SD 57103-16500, T:605-367-5300, F:605-367-5308. Please refer to Job Order #SD1237205.

SENIOR SYSTEMS ADMINISTRATOR to administer, monitor and configure SUN Solaris, Windows, Linux and Web Servers in large LAN/WAN environment; Develop and troubleshoot DNS Servers and Proxy Servers; Configure Cisco routers, Cisco switches and Cisco PIX firewall; Develop production work plans for J2EE applications; Develop Shell Scripts to automate jobs and install system utilities. Require: Bachelor's degree (or equivalent) in Computer Science, or a closely related field with 2 yrs of exp in the job offered; Each 3 yrs of progressively responsible work exp in the field will be considered equivalent to 1 yr of college education. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Vishy Dasari, Objectnet Technologies, Inc., 1117 Perimeter Center West, #E104, Atlanta, GA 30338; Attn: Job VS.

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PROGRAMMER ANALYST

40 hrs./wk. 8:30 a.m.-5:30 p.m. M-F. Job located in Melbourne, FL. Must have two years exp. in Job Offered. Plans, develops, tests & documents computer programs, applying knowledge of programming techniques & computer systems. Evaluates user request for new or modified programs to determine feasibility, cost & time required, compatibility with current system, & computer capabilities. Identifies current operating procedures & clarifies project objectives & specifications. Converts project specification into sequence of detailed instructions for coding into language processable by computer. Analyzes, reviews & alters program to increase operating efficiency or to adapt to newer requirements. Bachelor's Degree or foreign equivalent in Electrical or Electronics Engineering, Computer Science, or closely allied field. Send resume to: Mr. Paul Garzon, Manager, MIS Dept., M C Test Service, Inc., 3991 Sarno Rd., Melbourne, FL 32934, Phone: (321) 253-0541, ext. 3341.

Principal Software Engineer - Westford, MA. Develop traffic management software for real-time multiservice telecommunications switches. Focus on software engineering of real-time embedded systems for Frame Relay and ATM switches using TCP/IP protocols. Design and test enhancements to flow control processor software used for end-to-end network-wide traffic management and congestion control. Requires a Master's degree in Comp Sci, Elec Eng, or related field, and 1 year of exp in job offered or 1 year of exp as Software Engineer or related occupation. The 1 year of exp must include software engineering of real-time embedded systems for multiservice telecommunications switches using TCP/IP. Will accept bachelor's degree and five years of progressive exp in lieu of master's degree. 40 hrs/wk, 9:00 am - 5:00 pm, Salary: $115,884/year. Please send two (2) resumes to: Case# 200203165, Labor Exchange Office, 19 Staniford Street, 1st floor, Boston, MA 02114.

Technical Consultant: Participate in analysis, design, development (coding), testing& implementation of eCommerce & eBusiness solution. Use Siebel, C, C++, Corba, Java. Ensure customers success. Require travel throughout U.S. Send resume to Envisage Solutions. 18300 Von Karman Ave., Suite 620, Irvine, CA 92612.

01 Voice Bits, Inc. has openings for Software Engineers & Programmer Analysts for locs in NJ & elsewhere. Reqs incl at least 2 yrs exp. Use C, C++, Unix, Lotus Notes, Perl, MS Access, DB2, Sybase, MineShare & Geneva. Some positions req Bach or Masters. Must have legal auth to work in US. Excellent pay & benefits. Email resume w/proof of work status to: ashok@01voicebits.net

Computer Support & Research Specialist: Design, coordinate activities of computer systems; formulate info for corporate decision making; collect & analyze data; train users, troubleshoot all hardware/software components. Bachelors/Equivalent in Comp. Sc/Engineering w/rel.exp. Resume to HR, Petals Distnbuting, Inc., 320 Brannon Rd., Cumming, GA 30041

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IBM Releases Distributed File System for Multivendor SANs

Virtualization software plays key role; support limited to IBM arrays for now

BY LUCAS MEARIAN

IBM TODAY PLANS to release a distributed file-system technology that it said will provide storage management capabilities across storage-area networks (SAN) with disk arrays and servers from multiple vendors.

The TotalStorage SAN File System offering is based on IBM's Storage Tank virtualization software, and it works by creating a file-sharing protocol that lets servers use a distributed storage network as if it were a local file system.

"In theory, all the big servers in a SAN will be able to concurrently access the same data," said Steve Duplessie, an analyst at The Enterprise Storage Group Inc. in Milford, Mass.

But for now, the SAN File System supports only IBM's own Enterprise Storage Server disk arrays plus servers running its AIX operating system and Windows 2000. IBM is trying to convince other vendors to link their storage devices to the technology under a plan announced last spring.

IBM also plans to release versions of the SAN File System bundled with Linux-based versions of its xSeries servers "shortly," said Jai Menon, its chief technologist for storage systems architecture and design. In the spring, IBM had said those bundles would be ready to ship in December.

Keith Stevens, a systems administrator at Johns Hopkins University's Center for Cardiovascular Bioinformatics and Modeling in Baltimore, said he's waiting for the Linux versions to become available.

Stevens currently uses the Network File System (NFS) protocol to share data among Windows, Linux and AIX servers that are used to crunch data for cardiac research. But he said NFS is too slow.

In addition to Storage Tank, the SAN File System includes metadata servers and software agents that are installed on each file server on a SAN (see box). The metadata servers keep track of information such as the physical location of data, file sizes and end-user access permissions.

Francois Fluckiger, deputy head of the OpenLab project at CERN, a nuclear research laboratory in Geneva, is testing the SAN File System with some of his servers. CERN plans to give researchers online access to huge amounts of data from an atomic accelerator that smashes nuclear particles together. In order to do that, it needs a distributed file system, Fluckiger said.

"The storage issue is one of most stringent requirements of all," he noted. "We're planning on storing 15 petabytes of data per year." **42013**

TotalStorage SAN File System

- Software agents are **installed on file servers** to make them look like a local file system to application servers.
- Metadata appliances based on IBM's xSeries servers **keep track of information** such as the physical location of data.
- Pricing **starts at $90,000** for configuration with two dual-CPU metadata servers. Additional servers **cost $16,000**.

RIVALS PLAN TIES

IBM and EMC have agreed on a framework for exchanging storage interfaces:

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RFID Tags

the Pentagon plans to use electronic product code (EPC) standards that are being developed by EPCglobal Inc., a joint venture between Uniform Code Council Inc. in Lawrenceville, N.J., and EAN International in Brussels.

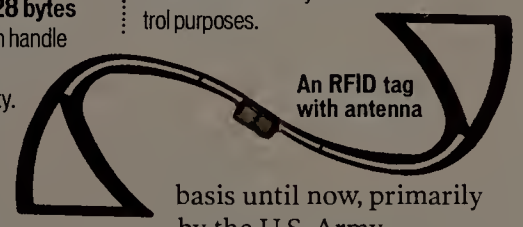
EPCglobal, which previously was called AutoID Inc., released the technical specifications for an RFID-based EPC network and supporting technology last month.

The Defense Department's timetable for starting to use RFID technology is ambitious, Estevez acknowledged. Nonetheless, military officials believe that suppliers will be able to meet the rapid rollout schedule, he said.

But Kara Romanow, an analyst at AMR Research Inc. in Boston who cited both software and hardware impediments, said the early 2005 deadlines imposed by the Pentagon and Wal-Mart are highly impractical. For example, she said, RFID tags currently have a 20% failure rate and can't stand up to the kind of environmental extremes that military units face.

How RFID Works

- Passive RFID devices use **embedded antennas with a range of up to 10 ft.** to let data be "read" by low-powered radio transmitters.
- Active tags have **built-in minitransmitters** and store data that can be read at distances of 300 to 400 ft.
- Passive tags **can store 128 bytes of data,** and active ones can handle 128KB. By comparison, bar codes have a 1.1-byte capacity.
- RFID systems **can read tags on cases that are stacked on top of one another,** without requiring a direct line of sight.
- In addition to shipping applications, RFID tags can be used to **track baggage and can be sewn into garments** for inventory control purposes.



The cost of the devices is another hurdle. Passive RFID tags typically sell for up to 50 cents each. Bentonville, Ark.-based Wal-Mart wants to see that lowered to 5 cents per tag. Estevez said the Defense Department is looking for "the lowest possible price," but he didn't disclose any cost targets.

Active Interest

In addition to requiring suppliers to use passive RFID tags on pallets and cases, the Pentagon has instituted a formal policy to put active RFID tags on all of the 20- and 40-ft. shipping containers used by the military. Estevez said. That has been done on an ad hoc basis until now, primarily by the U.S. Army.

Active RFID tags offer more capabilities than their passive counterparts but cost much more. RFID proponents claim that both kinds of tags can store more detailed information about products and materials than conventional bar codes (see box).

Wynne, in his policy memo, said the military plans to use RFID technology to "improve our business functions and facilitate all aspects of the Defense supply chain." It also expects improvements in "data quality management, asset visibility and maintenance of materiel," he added.

But many suppliers will have to make massive IT investments to support RFID, with little in the way of tangible returns "aside from meeting the mandate," said Mike Liard, an analyst at Venture Development Corp. in Natick, Mass. The cost of RFID readers and systems could run as high as $100,000 in a single warehouse, Liard said.

Larry Kellam, director of supply network innovation at Procter & Gamble Co., said that at 5 cents per tag, it would cost the Cincinnati-based consumer goods maker about $110 million to put RFID devices on all of the 2.2 billion cases and pallets it ships annually.

But the data produced by RFID technology could offer a big payback in the form of better inventory management, Kellam said. If done right, RFID should help ensure that products are available on store shelves while also lowering warehousing costs, he added.

P&G is one of the top 100 suppliers to both Wal-Mart and the DOD. Romanow estimated that P&G and the other 99 companies that Wal-Mart is working with will have to spend a total of $2 billion by the end of next year to meet its RFID mandate. **42033**

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FRANK HAYES ■ FRANKLY SPEAKING

Back-seat Drivers

WHAT'S DRIVING IT at your company these days? We all know the politically correct answer: IT should be driven by business needs and opportunities. We also know the realities that are as old as IT itself: IT is also driven by politics, fads, personal preferences and the ability of some darn friendly sales guys to close some darn friendly deals.

But it doesn't end there. Today there are lots of other people grabbing for your steering wheel. They want to drive IT too.

For example, last week Microsoft announced that it's making changes to the way Internet Explorer handles Web site content that depends on browser plug-ins — which includes Java, Macromedia Flash and ActiveX content. If you use that kind of content and don't make the changes Microsoft specifies, your content won't always display the way you designed it to.

Microsoft isn't grabbing the wheel merely to show that it can; the company just lost a half-billion-dollar patent-infringement lawsuit related to those plug-ins. So Eolas Technologies and the University of California, which control that patent, are doing some of the driving too.

Microsoft was awarded a patent of its own last week — this one having to do with how instant messaging programs notify users of activity. The patent may also apply to other instant messaging programs, such as the ones from America Online and Yahoo. If those vendors decide to make changes, and you've built applications that depend on the way they were, you might find yourself with still more hands on the wheel.

It's not just patents driving those changes, either. Two years ago, Microsoft and Sun Microsystems settled part of their running legal battle over Java, and Microsoft agreed that it would stop all Java support at the beginning of 2004. Last week the two companies agreed that Microsoft will keep doing security updates on its Java implementation through next September, giving customers more time to migrate away from it — and for now, a little more flexibility in their steering.

And last month, VeriSign, which controls the domain name databases that let computers find one another over the Internet, forced some companies to scramble when it unilaterally changed the way the system works, breaking some applications. VeriSign has temporarily stopped what it was doing but is making no promises about how long the respite will last before it grabs the wheel again.

And those are just the pure-technology drivers. There's also a long history of customers forcing technology changes on their suppliers. (Remember EDI?)

Last week that process started again, when the Defense Department announced plans to require all suppliers to use radio frequency identification tags on everything sold to the military by 2005. Wal-Mart and other companies are experimenting with RFID technology too, which means you may soon be turning in that direction whether you want to or not.

And that's only about a week's worth of extra IT drivers. They'll keep piling up — drivers that aren't aimed at using IT for efficiency or innovation, but just one thing after another that you'll have to make decisions about and maybe spend money on, regardless of whether they benefit your business.

You can't afford to let them get control of where your IT work is going. Yes, it's important not to lose track of these extra drivers. Keep scanning the news for them. Follow the ones that might affect your projects. Make contingency plans. Stay prepared.

But don't let them pull you off course. The demand for IT to stay sharply focused on business needs and opportunities will only increase in the months ahead. Plan for those unexpected hands on the wheel, but keep a firm grip on it yourself.

That's the only way to make sure business stays in the IT driver's seat. 41989

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

Can't Argue With That

Pilot fish's team takes over responsibility for this 5 million-document data warehouse fed by eight different systems. The team's first enhancement: adding a data integrity checker. "It did its job and pointed out a big problem with one of the feeding systems," fish says. "When we met with that system's manager to discuss the issue, her retort was, 'Well, we didn't have this issue until you started running your data integrity checker!' "

Aha!

It's 1983, and this IT pilot fish can't figure out why software updates for factory-floor equipment are always corrupted. So fish tags along to watch the union electrician install the next update. "When he comes to the security sign-in log, he needs both hands to hold the log book and sign in," fish says. "So he takes the big floppy disk, briskly folds it in half and stuffs it into his back pocket, and signs in."

Details, Details

Tech asks pilot fish to check a switch box that connects a single keyboard and monitor to two PCs. "He switches from one CPU to the other, alternating between a sign-on and a black screen," says fish, who surveys the setup for a moment, then tells tech, "It works better if both systems are turned on."

But Hers Is Better

In the days of DOS, this pilot fish notices that his wife's PC at work has a color monitor. "I experimented with the PROMPT command and got her DOS prompt changed to a colorful combination," fish says. "Her boss noticed this, and when my wife transferred out of the department, I heard him say that he wanted her monitor – though everyone in the department had the same type of monitor."

It Must Be Monday

After a long weekend of installing upgrades, bleary-eyed pilot fish is eating breakfast at his desk when user stops by with a printed-out e-mail and a question. User: "Have you ever heard of 'snail mail'?" Fish: Yes. . . . User: "Do we get that here?"

Not as Quick as He Thinks He Is

User complains that his PC keeps locking up, but IT pilot fish can't find anything wrong with it. I can show you, user says. "He opened a dozen Word documents, then quick as lightning used Ctrl-P to print each document and closed it," says fish. "I told him he was overloading the print queue and not to print so many documents at once. He thought it was the greatest thing ever that he was too fast for his computer, and he put in a request for a faster one."

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